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Big Cats

A magazine by IBCA on wildlife conservation

Prime Minister of Bhutan
Tshering Tobgay
writes on the
conservation model for happiness

Can Wildlife
Corridors
be a Lifeline for
Pumas?

+

Spots of
Hope for Snow
Leopards

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A Quest for the
Ghost of Taiga

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(Clockwise from Left) Scenes captured by camera traps placed inside Similipal: A pseudo-melanistic tiger looking into the camera, taking a stroll and marking territory



Tiger, Tiger Burning Black

A pseudo-melanistic tiger, commonly referred to as black tiger, is a rare Bengal tiger with colour variation. A genetic mutation increases melanin production, resulting in strikingly dark or nearly black stripes interspersed with orange-yellow stripes. The Similipal Tiger Reserve in Odisha, India, is the only place in the world where these unique tigers can be found in the wild.

PHOTO COURTESY **YASHPAL RATHORE,**
SIMILIPAL TIGER RESERVE



Conservation Choices, when Less is More



Human development has become a perennial threat to apex predators like big cats. The development goals of humans have been in conflict with the survival needs of big cats. Can progress be measured not by profit alone but by the well-being of people and wildlife?

Today, a small country like Bhutan offers a conservation model that is worth emulating. We are honoured to have the Prime Minister of Bhutan Tshering Tobgay share the country's journey of conservation and sustainability in a special Op-Ed article for the magazine.

In several parts of the world, human expansion via road infrastructure, especially highways, has disrupted and destroyed natural ecosystems. Humans use highways to reach their destinations of work and leisure, transportation of items and even war zones. Our March-April 2025 cover story talked about the terrible impact of roadkills on the already dwindling jaguars in the Pantanal. For conservationists, the rising concern is how to counter human expansion and protect the fragile ecosystems that help several species survive.

In this issue, our cover story on pumas examines how conservationists are working on building biological corridors that offer safe passages to pumas in the Americas. The most common cause of mortality among pumas in countries like the US is roadkill.

Indeed, conservation demands hard decisions, innovations, and even sacrifices. The experience with tigers and snow leopards indicates that when governments, activists, conglomerates and communities come together, a lot can be achieved. Our story on snow leopards takes a panoramic view of the key actors involved in creating safer habitats for this elusive big cat. Our interview with Dr Andrey Kushlin elaborates on the factors that ensured the global momentum to save the tiger.

Several of our readers have appreciated our riveting photographs of wildlife and the communities around them. This issue brings more such treats: the beautiful Amur tiger family shot with custom DSLR camera traps in -40 degree in Ussuri taiga; the rare pseudo-melanistic tiger in India, and the Arabian oryx, that has now made a comeback in Jordan. These visuals are a consistent reminder that conservation may sometimes ask us to have little less, so that the wildlife can live more. 🐾

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Cover Images: A female puma (named Coiron by the local community) in Patagonia National Park, Chile. Photograph by Sarah Killingsworth.

Back Page: Tiger in Corbett Tiger Reserve, India. Photograph by Mayank Jaiswal

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Tshering Tobgay
pg 06
Tshering Tobgay is the Prime Minister of the Kingdom of Bhutan since 2024. Before

entering politics, he made significant contributions as the Director in the Royal Government of Bhutan, serving from 2003 to 2007. Internationally, his efforts towards sustainability were acknowledged with the German Sustainability Award in 2016 and the Distinguished Leadership Award from the Hospitality Committee for United Nations Delegations in 2022.



Dr Byron Weckworth
pg 14
Dr Byron Weckworth is a conservation biologist whose career has taken him from the coastal

rainforests of Alaska to the high mountain ranges of Central Asia. For more than 20 years, he has studied the movement, genetics, and survival of wildlife across vast landscapes, with a particular focus on snow leopards. His efforts reflect a lifelong commitment to understanding the deep connections between wildlife, people, and place.



Swapan Mehra
pg 20
Swapan Mehra is an environmental finance and climate policy expert and Founder-CEO of

Iora Ecological Solutions, a leading environmental advisory firm that enables climate action through integrated, nature-based solutions. He is a World Economic Forum's Young Global Leader (2020), a Donella Meadows Fellow at the Balaton Group, and a FICCI Young Business Leader.



Dr Patrick Lendrum
pg 08
Dr Patrick Lendrum leads the development of science priorities for WWF's US Great Plains Programme. His research addresses the decline of native grasslands and their potential impacts on wildlife and human communities. He has also

served as the puma biologist with Panthera. Patrick's research has been featured in National Geographic magazine, BBC documentaries, and published in dozens of peer-reviewed scientific articles.

Our Contributors for this Issue



Dr Cleo Graf
pg 18
Dr Cleo Graf is an executive director of SMART Partnership. With over 20 years of experience in conservation and project management, Cleo focuses on building partnerships, strengthening teams, and promoting practical, data-driven solutions. Having worked across sub-Saharan Africa and beyond, she strives to encourage collaboration and knowledge sharing that benefits conservation outcomes.



Sascha Fonseca, pg 28
Sascha Fonseca is a German wildlife photographer based in Dubai, UAE. Sascha specialises in using DSLR and mirrorless camera trap technology to capture rare, intimate moments of wildlife. In 2023, he became the first non-Russian photographer to win at the prestigious photo competition of the Russian Geographical Society with an image of an Amur tiger in its beautiful natural snow habitat, titled Fairytale Forest.



Kevin Yu Shi, pg 08
Kevin Yu Shi is a photographer based in California, USA. His goal is to use his camera to tell stories and capture the beauty of the world around him. Kevin is particularly drawn to wildlife and the special bond between humans and animals. He is especially interested in big cats and is always seeking conservation efforts that help protect these magnificent creatures.



Sarah Killingsworth, pg 08
Sarah Killingsworth is an award-winning wildlife conservation photographer, filmmaker, and writer who has always loved exploring wild places. She is passionate about stories of coexistence, especially with native carnivores. Sarah has a natural curiosity about the intersection of humans and wildlife habitats, how wildlife adapts to expanding human development, and ways we can protect species before they become endangered.



Dr Madhu Verma
pg 20
Dr Madhu Verma, an environmental economist, has over 40 years of experience in ecosystem valuation, green accounting, nature finance, and biodiversity conservation. She has

led studies for the 13th, 14th and 15th Finance Commissions and was instrumental in the introduction of the 'tax devolution formula' for compensated conservation. She has worked with UNDP, World Bank, USAID, and IUCN on green accounting, biodiversity credits, and carbon markets.



Dr Priyamvada Bagaria
pg 20
Dr Priyamvada Bagaria is an expert in landscape ecology, spatial conservation planning, and biodiversity finance, with over 11 years of

experience in GIS-based conservation strategies, land-use models, and climate adaptation for forest ecosystems. She has led ecosystem valuation studies, and advanced forest carbon offset projects through research on carbon sequestration and natural capital accounting.



Preserving Happiness

Bhutan's Journey of Conservation and Sustainability

BY **TSHERING TOBGAY**, PRIME MINISTER OF BHUTAN

Nestled in the eastern Himalayas, Bhutan is often described as a hidden gem, a nation rich in culture, tradition, with a profound reverence for nature. Our mountains shelter ancient monasteries, our rivers carve fertile valleys, and our forests rise as living sanctuaries of life. Yet, Bhutan's greatest treasure is not its landscape. It is the philosophy with which we have chosen to live: that prosperity and sustainability are not rival pursuits, but inseparable truths.

At a time when humanity confronts a climate emergency and biodiversity loss on a scale never seen before, Bhutan offers another story. Guided by the vision of His Majesty the Fourth King of Bhutan, who gave the world the philosophy of Gross National Happiness, we measure progress not by profit alone but by the well-being of people, culture, and nature together. For us, happiness is not abstract. It is the farmer harvesting grain from fertile soil, the child breathing pure mountain air, and the community living in harmony with the forests that surround them.

This vision is enshrined in our Constitution, which requires that no less than 60% of Bhutan shall remain under forest cover for all time. Today, nearly 70% of our country is forested, and more than half is protected as national parks and

biological corridors. In these sanctuaries, tigers roam, snow leopards prowl, and black-necked cranes descend each winter, which is a vivid proof that biodiversity can endure against global currents of decline.

For a nation of just 38,000 km² to shelter eleven species of wild cats is remarkable. That their numbers are rising is even more so. In 2015, Bhutan counted 103 tigers; today there are 131. Snow leopards, once recorded at 96 in 2016, now number 134. Each of these animals carry a story of resilience, and a reminder of what becomes possible when conservation is rooted in both science and culture.

We have achieved this while reducing poverty dramatically, proving that social progress and environmental stewardship can advance hand in hand. Bhutan is also one of the few carbon-negative countries on earth. Our forests absorb more than five times the carbon we emit, while clean hydropower lights our homes and drives exports to our neighbours. This is not a statistic. It is a moral statement: development does not have to come at the planet's expense.

Yet, our path has not been without hardship. As wildlife populations grow, so does human-wildlife conflict. In Trongsa district alone, nearly 600 livestock were lost to tigers between 2020 and 2024. For conservationists abroad, such figures may mark success. For Bhutanese farmers, they

mean food insecurity, lost income, and profound anxiety. This is the paradox of conservation: nature must be protected, but never in a way that undermines the lives of those who coexist with it.

Across the world, wildlife populations have collapsed by nearly 70% in the last 50 years, and one million species now stand on the edge of extinction. To reverse this crisis, 'business as usual' will not suffice. Protected areas and anti-poaching patrols are vital, but they are not enough. We must reimagine conservation as a genuine partnership between nations and communities, finance and ecosystems, human aspiration and planetary survival.

Bhutan has sought to pioneer this vision. We established the world's first environmental trust fund, and through Bhutan for Life, secured permanent financing for our protected areas, a model that has since inspired others across Asia.

In 2024, under the patronage of Her Majesty The Queen, Bhutan hosted the Sustainable Finance for Tiger Landscapes Conference, rallying leaders, businesses, and civil society to pledge USD one billion for global tiger conservation.

But money alone cannot safeguard the earth. Conservation must live in the hearts of people. That is why Bhutan is expanding its 'low-volume, high-value' approach to tourism into nature and wildlife experiences that empower local



View of a farm in eastern Bhutan. Close to 70% of Bhutan is forested

Photo: Ulyse Pixel

The crises before us demand not only ambition but courage – the courage to redefine progress, to weigh happiness alongside GDP, and to value forests and rivers not merely as resources, but as the foundations of life itself

communities as true custodians and beneficiaries. And under the visionary leadership of His Majesty the King, we are building Gelephu Mindfulness City – a sustainable, regenerative, and a carbon-negative urban centre that will prove to the world that economic growth and ecological harmony can thrive not in conflict, but in partnership.

Bhutan's story is not one of perfection, but of possibility. If a small nation with

modest resources can remain carbon negative, preserve two-thirds of its forests, protect endangered species, and still reduce poverty, what excuse remains for the rest of the world?

The crises before us demand not only ambition but courage – the courage to redefine progress, to weigh happiness alongside GDP, and to value forests and rivers not merely as resources, but as the foundations of life itself.

Bhutan will continue to lead by example. But we cannot do this alone. We invite nations everywhere to act with urgency, to innovate with compassion, and to stand together for a future where prosperity is measured not by what we take from the earth, but by what we leave behind.

For, in the end, the greatest legacy we can offer is not wealth or power, but a thriving planet – a planet where true, enduring happiness can flourish. 🐾

Can Wildlife Corridors Be a Lifeline for Pumas?

Across the Americas, conservationists are working on building biological corridors that offer safe passages to the decreasing or genetically isolated populations of pumas. They hope such pathways will increase their chances of survival in the future

BY PATRICK LENDRUM

Puma conservation across the Americas appears as a multifaceted picture of ingenuity and resilience. The puma (*Puma concolor*), also known as the mountain lion, cougar, catamount and panther, once ranged across the Americas, from northern Canada to the furthest extent of South America and from the Pacific to Atlantic Ocean. Today, while largely absent from the eastern half of North America, it spans 23 countries across its historic range, making it not only the largest ranging terrestrial mammal in the western hemisphere, but also the widest ranging large felid of the world.

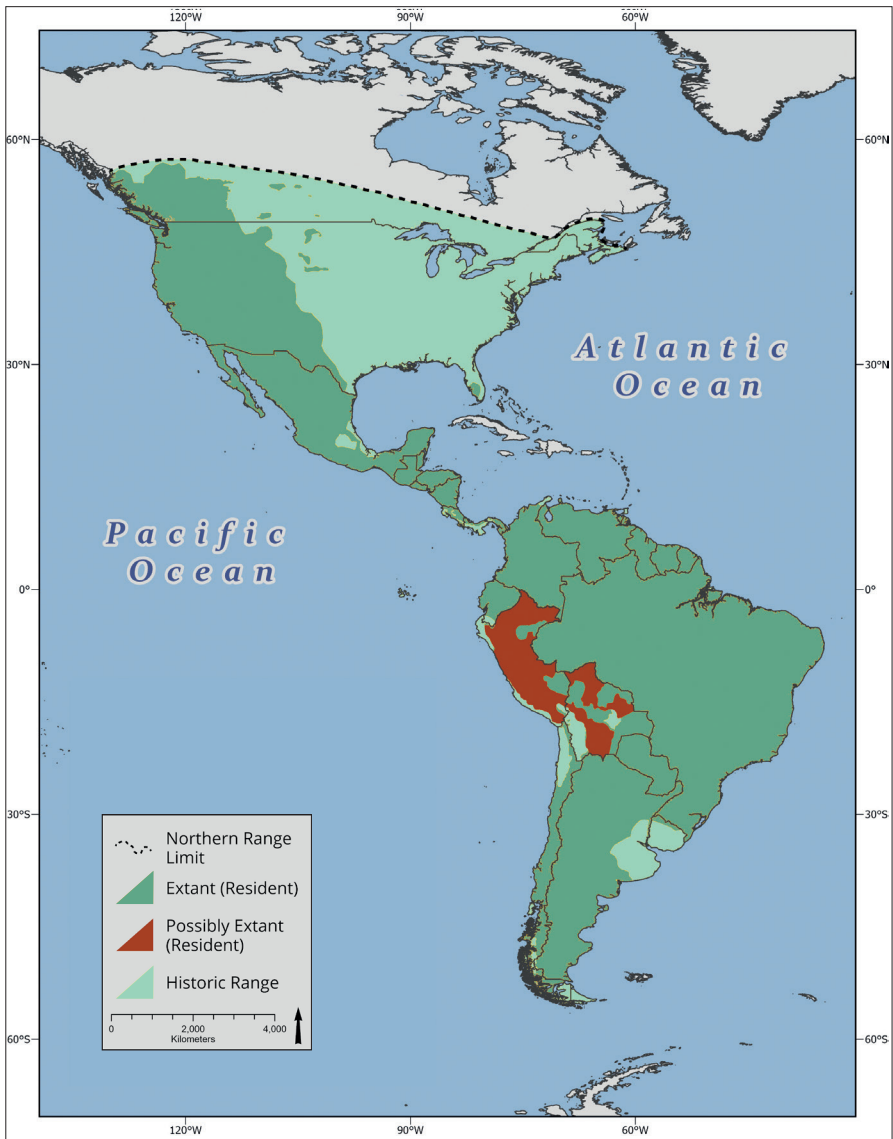
As top predators, pumas play a critical role in maintaining a functioning ecosystem by regulating prey and predator populations, provisioning carrion, and other ecosystem services as evidenced by the more than 500 ecological interactions associated with pumas across 485 other species.

The IUCN Red List of Threatened Species considers puma populations to be decreasing in general, but because they are so widely distributed, pumas are designated as a species of Least Concern (a species still plentiful in the wild). The puma is the only species of the seven large cats included in the International Big Cat Alliance (IBCA) with this IUCN designation. However, within countries the threatened and endangered status is often stark. Puma populations in Florida (US) and Costa Rica are classified as Endangered, the puma is Near Threatened in Argentina, Brazil, Columbia and Peru, and Chile despite being legally protected.

According to IBCA, in Florida (southeastern US), only an isolated remnant of the endangered subpopulation remains. It is estimated that between 100 and 180 individuals survive. The number of puma observations in northeastern Canada, the Midwest, and the eastern US are increasing, suggesting possible recolonisation. In the early 1990s, the puma population in Canada was estimated to be between 3,500 and 5,000, and around 10,000 in western states of USA.

A mother puma with her cubs in Torres del Paine National Park, Chile

Photo: Kevin Shi



Habitat distribution of the puma across the Americas. Source: WWF, USA

Population estimates in Central and South American countries are limited to a country level, and it is unclear how common pumas are in the dense rainforests of the Amazon Basin. Puma populations within protected areas in Argentina, Belize, Bolivia, and Mexico are estimated to be 1.68, 1.27, 1.99, and 1.84 individuals per 100 km², respectively. In Uruguay, the puma is considered highly endangered, with densities estimated to be as low as 0.5 individuals per 100 km².

Biological Corridors Reduce Urban Impact



Biological corridors facilitate the dispersal of wildlife populations and reduce the probability of mortality, genetic isolation and ultimately the potential local extinction of a species. Such wildlife corridors in the Americas offer hope to the puma. They offer safe passage between fragmented habitats and ensure the long-term genetic health of isolated populations. Once they are given this opportunity to move across landscapes, pumas travel across diverse habitats – forests, deserts, grasslands, coastal regions, urban habitats, and agricultural landscapes. Conservationists have observed that well-maintained corridors reduce pressures of habitat fragmentation, thereby reducing the impact of urban development, energy and road infrastructure, and agricultural production.

Corridor conservation has many forms. In California, US, freeway overpasses are being installed to mitigate vehicle collisions and facilitate migration and genetic connectivity. In Los Angeles County, the Wallis Annenberg Wildlife Crossing is being built and is said to be the largest wildlife crossing in the world of its kind when completed. This \$92-million passageway is likely to be completed in 2026. When completed, it will connect the Santa Monica Mountains with the Simi Hills, an area that experienced 32 puma mortalities between 2002 and 2022 due to wildlife-vehicle collisions. The mountains bisected by the highway are estimated to hold between 10-15 adult and subadult pumas at a given time.

Further north in California, a highway crossing was completed in 2022 and was based on years of puma research and tracking animal movements and vehicle collisions. Two years later, the first puma was documented successfully using the corridor. Across California, the puma population is estimated to be between 3,200 and 4,500 individuals. In 2024, the California State Game and Fish Commission ruled that a petition to protect pumas under the California Endangered Species Act in the southern and central coast regions of California was warranted.

In Belize (Central America), a multiagency law was signed into order declaring the North-Eastern Biological



Highways can be Deathtraps

- Puma habitats have been impacted by construction of highways. As humans build highways through states that cut into puma territory, pumas must cross the highways and run the risk of losing their lives. These highways have become sites of frequent accidents. Environmentalists warn that such accidents will result in ecological imbalance in a region and threaten local wildlife.
- A long-term study of pumas in 2001 in southern California highlighted the extensive and growing network of roads that carried more than 250,000 vehicles every day. It indicated that the most common sources of mortality were vehicle collisions (28% of deaths), and depredation permits (17% of deaths). These permits allow the killing of pumas to protect livestock. This 13-year study concluded that pumas were at a high risk of mortality due to fragmentation and urbanisation.

Corridor, which is taking the form of three nature reserves encompassing 27,000 hectares. The reserves provide biological connectivity and habitat protection in an area of high sugarcane production. And as a third example, in the northern Chaco region of Paraguay, several NGOs and the Paraguayan government are working together to create a biological corridor connecting two large, core protected areas in Paraguay and Bolivia.

Researchers are using a growing suite of tools to track pumas and evaluate habitat use as they move across landscapes, identify refugia, determine where pumas are most at risk when crossing roads, delineate critical habitat for certain behaviors, examine predator-prey dynamics, understand reproductive and social behaviours of what

was once thought to be a solitary species, and mitigate conflict with livestock. The global positioning system (GPS) tracking collars and remotely triggered camera traps are the most commonly used tools. Researchers also use DNA (eDNA), genetic material left by an animal in water, soil, on plants, and even in the air, to detect puma presence when no other signs may be visible. Biopsy darts are also being used in some regions to estimate puma populations with advanced genetic techniques.

With recent advances in machine learning such as automated photo identification, genetic testing, and complex habitat suitability models, conservation practitioners can learn more about puma populations and respond quicker to conservation needs than ever before.

Photo: Sarah Killingsworth



A Puma walks in Torres del Paine National Park

Conservation efforts across the US have helped these big cats expand their range into territories once lost. Still, challenges exist, such as livestock-wildlife conflict, vehicle strikes, disease, and competing land uses that continue to demand careful management.

In North America, established breeding cougar populations occur in 16 states of the 48 they once occurred, including Arizona, California, Colorado, Florida, Idaho, Nebraska, Nevada, New Mexico, Montana, Oregon, South Dakota, North Dakota, Texas, Utah, Washington, and Wyoming. While sightings occur in the Midwest and occasionally further east, stable breeding populations are lacking,

As human activities expand further into puma habitat, there is an urgency to find a balance between active conservation success and emerging threats

serving as a reminder of the long-term impacts that habitat loss and historical overhunting still have after nearly a century of being extirpated.

Pumas are abundant in western Canada, with a particularly high density on Vancouver Island and established populations elsewhere in British Columbia, Alberta and Saskatchewan. Pumas also occur across Mexico from the deserts and mountains in the north to the tropical forests in the south; however, outside of select protected areas information about populations and trends is scarce.

All seven countries in Central America, including Panama, Costa Rica, Nicaragua,

Photos: Sarah Killingsworth



An elk, a member of the deer family, and a common prey for pumas

Honduras, El Salvador, Guatemala, and Belize, are puma habitats. Recently, pumas were thought to be extinct in El Salvador. Conservation organisations are actively working to restore genetic connectivity among puma populations that have become fragmented by rapid land-use changes. In Costa Rica and elsewhere, researchers and ranchers are working together to reduce conflict with livestock through the use of remote cameras to alert when a puma is present combined with predator deterrents and changes in grazing practices.

In South America, pumas are found in Argentina, Bolivia, Brazil, Chile, Colombia, French Guiana, Peru, Suriname, and Venezuela, though the extent of research on pumas varies. In Patagonia National Park, for example, camera traps and collaring efforts have provided critical insights into puma response to human presence, puma social structure, dietary

When Humans Become Predators

- In southern Chile, pumas have been targets when overlapping with sheep ranches called estancias. Pumas sometimes move out of conservation parks and protected lands into surrounding sheep ranches and get killed by the gauchos, the skilled horsemen working in the ranches. Puma hunters are known to earn \$200 to \$400 per kill.
- Puma hunting occurs across the western US, except in California. In these states, pumas are considered a game species and permits are given for recreational hunting. The exception is Texas where pumas are a non-game species and few hunting restrictions are in place. Humans are the puma's top predator.

Guanacos, a camelid native to South America, are among the primary prey of pumas



Photo: Kevin Shi

habits, and home range dynamics. Similar efforts are also occurring in Brazil, examining puma movements and ecology in savannah and forested ecosystems. This rich body of ecological data being collected here and elsewhere in South America is instrumental in shaping responsive management practices that help mitigate conflicts with local communities, especially where livestock and wildlife interests interact.

Can wildlife corridors offer a formula for conserving large carnivores in highly populated and fragmented landscapes? As human activities expand further into puma habitat, there is an urgency to find a balance between active conservation success and emerging threats. The corridors appear to give hope. 🐾

Dr Patrick Lendrum is the Science Director for WWF's US Great Plains Programme.



Snow leopards in Spiti Valley, Himachal Pradesh, northern India

Photo: Sourav Mondal

domain. It yawned, casting a look down at us as if mildly annoyed, and then rose with the unhurried grace that only cats possess and faded out of view. My first sighting was brief, silent, and unforgettable.

To encounter a snow leopard in the wild is to feel both awe and a silent agony. Spanning 12 nations and some of the globe's most remote terrain, snow leopards play a crucial ecological role in high mountain ecosystems, where survival hinges on thin margins. The IUCN Red List estimates that perhaps as few as 7,000 of them exist, symbols of a realm in fragile balance, but a balance that is fraying.

Climate change is creating more extreme weather and shifting vegetation zones. Human populations grow, and with them their livestock, increasing conflict and degrading the grasslands. Transportation infrastructure and natural resource extraction carve up the landscape, connecting once inaccessible places for people while fracturing the landscape for wildlife. Poaching continues, abetted by the calamity of it all and those who value snow leopards more for parts than their roles as guardians of sacred mountains.

Allies of the Snow Leopard

But the snow leopard's challenges and struggles for existence are not fought without allies. For decades, much of the global narrative around snow leopard conservation was shaped by the passion and persistence of a few high-profile pioneers, like George Schaller

The monasteries safeguard their sacred mountains, organising anti-poaching patrols, conducting biodiversity surveys

(renowned biologist who conducted extensive studies in the Himalayas in 1970s and was the first Westerner to photograph the elusive cat), Helen Freeman (founder of the Snow Leopard Trust), Rodney Jackson (founder of the Snow Leopard Conservancy), and Tom McCarthy (career conservation and research leader across High Asia).

Conservation was never foreign to these mountains. Before snow leopards became symbols in glossy magazines or roused the awe of nature documentary fans, they were part of life and lore for the communities that shared their landscape. A vast majority of the snow leopard range

overlaps with regions practising Tibetan Buddhism, a faith with the essential tenet to love, respect, and show compassion for all living beings. The monasteries safeguard their sacred mountains, organising anti-poaching patrols, conducting biodiversity surveys, and preaching to their pastoral followers on coexistence.

While the Buddhist monasteries created this spiritual refuge, local NGOs emerged to bridge science, culture, and practice. And just as the names of foreign scientists became synonymous with the species, so too must we recognise the luminaries from within the range, leaders like Lu Zhi (founder of Shan Shui Conservation Center), Charu Mishra (co-founder of Nature Conservation Foundation and Partners Conservation Alliance), Muhammad Ali Nawaz (founder of the Snow Leopard Foundation), and Bayarjargal Agvaantseren (founder of the Snow Leopard Conservation



A snow leopard research field camp in Mongolia's Tost Nature Reserve. Here the world's longest snow leopard study is conducted

Photo: Byron Weckworth

Spots of Hope for Snow Leopards

The snow leopard's range stretches across 12 countries in complex terrains. Conservation biologist **Byron Weckworth** narrates how diverse groups – herders, teachers, artisans, monks and students – are working to protect the species

When I first set foot on the Tibetan Plateau, I felt the weight of a place shaped by wind and time, where predator and prey leave their stories on the snow and stone. In 2013, a year into my role with the non-profit Panthera, I was traversing that ancient landscape in the Sanjiangyuan Region, a landscape that would later become China's inaugural National Park, created to protect the headwaters of three of Asia's greatest rivers, the Yangtze, Yellow, and Mekong, and to serve as a stronghold for snow leopards.

My Tibetan and Chinese colleagues and I were surveying for one of the cat's primary prey, blue sheep, moving deliberately through one valley to the next, breathing thin air, measuring the pulse of an ecosystem defined by altitude, cold, and scarcity. One particularly frosty morning, as I shouldered a pack retrieved from the truck, our keen-eyed Tibetan colleague called out, cutting through the quiet. Snow leopard! I scanned the rocky horizon where he pointed, and there, stretched across the morning's first light was the ghost I'd been anxious to find since my first steps in its



Photo: Byron Weckworth



Photo: Rajjana Pal

(Left to Right) A Tibetan fox pauses mid-step, eyes locked. Though small, this predator is part of a vast alpine web, hunting pikas and scavenging remains left by larger carnivores. Blue sheep, also known as bharal in Gangotri National Park

Foundation) whose vision, scholarship, and activism have defined what conservation looks like in local terms.

Today, across the snow leopard's vast range, the most impactful efforts are being driven from within. This is where conservation is rooted now, in communities, cultures, and national identities, and it is in their hands that the snow leopard's future lies. Across plateaus, valleys, and sky islands threaded by wind and prayer flags, conservation of the snow leopard pads along to the steady cadence of herders, teachers, artisans, monks, and students, their voices a chorus of many tongues.

I have been fortunate to witness the paradigm shift in real time. In Ladakh, with the Snow Leopard Conservancy – India Trust, I've watched old corrals, vulnerable to predators, reborn as sturdy sanctuaries through local hands, volunteer labour, and community support. I've shared meals in homestays where families open their doors to travellers in search of both wild cats and cultural kinship. I've seen women once relegated to the edges of decision-making now running handicraft enterprises and parachute cafes, becoming economically independent and leaders in conservation. Youth who might have otherwise left for distant cities are enticed to stay,

When conservation is led by those who live with its consequences, and its rewards, it becomes something more enduring

study wildlife, and thread another stitch to bolster the future of their home.

In Mongolia, my colleagues at the Snow Leopard Conservation Foundation, in collaboration with the Snow Leopard Trust, have built the species' longest-running ecological research site, while also nurturing a generation of stewards. Schoolchildren learn about the animals in their backyards through hands-on camps in the South Gobi. Women's cooperatives craft goods that carry the story of their landscape into the wider world. Community insurance programmes and rangeland management efforts balance ecology with economy, showing respect for

both grass and hoof, predator and prey.

In Pakistan, the Snow Leopard Foundation blends the scientific with the humane. They've trained Ecosystem Health Workers from within the very communities that share space with snow leopards. They organise livestock vaccination campaigns that boost household resilience, making the occasional loss to a predator less devastating. Their camera traps and genetic tools reveal the hidden life of these mountains: snow leopards, of course, but also the intricate fabric of biodiversity that surrounds them.

And in China, the nonprofit Shan Shui has woven something



Photo: Byron Weckworth

In Qinghai, China, a monk and herder tabulate livestock losses, details of an insurance programme

deeply powerful, part science, part tradition, part community. They've helped build a mosaic of trust among local leaders, Buddhist monasteries, and government officials, aligning their efforts into a conservation partnership that is resilient because it is inclusive, built on reciprocity and respect. In these communities, when the snow leopard thrives, so too does the village.

These are only the stories I know best, organisations I've had the privilege to work with, colleagues I've learned from, and terrain we've navigated with shared intent. They are hardly alone. Across the snow leopard's diverse geocultural distribution, local NGOs, village committees, and spiritual institutions are shaping their own models, grounded in place, carried by people, and bound by commitment. This is what conservation looks like for the snow leopard, not imposed, but rooted. It may not always be fast or flawless, and the challenges are real: poverty, shifting policies, and the seeming inevitability of development. Yet, when conservation is led by those who live with its consequences and its rewards, it becomes something more enduring, not just strategies and projects, but stories and promises to the landscapes and all that dwells in them.

For all the importance of local efforts, of homestays, handicrafts, and youth programmes, some challenges reach beyond snow-swept peaks and village boundaries. The snow leopard's range stretches across 12 countries and some of the most geopolitically complex terrain on Earth. Protecting this species, and the high mountain ecosystems it anchors, requires something else: coordination at scale, and the political will to work across borders.

In 2013, all snow leopard range country governments convened in Bishkek, Kyrgyzstan, and, with the guidance of international

partners and practitioners, they launched the Global Snow Leopard Ecosystem Protection Program (GSLEP), a programme to provide structure where fragmentation once prevailed. The GSLEP is not bureaucracy at a distance; it is a backbone, joining ministries, conservationists, and communities, reminding us that even solitary cats can inspire collective action.

The GSLEP has helped standardise population monitoring methods, allowing countries to track progress with greater confidence and clarity, providing data essential to informing national policies and global assessments. Programmes like GSLEP show what's possible when political will aligns with scientific insight and community engagement. International NGOs bring resources and expertise, but real, lasting impact happens when that support elevates local voices rather than replace them.

Conserving snow leopards is not a task for one community, one country, or one kind of institution. It is a layered endeavour, one that relies on the persistent work of scientists and herders, monks and ministers, schoolchildren and seasoned policymakers. It requires participation across scales, local stewardship, national commitment, and global partnership, all moving in tandem.

As for the rest of us, those who live far from these windswept mountains, we can contribute by accepting that conservation may sometimes ask us to have a little less, so that nature can have a little more. Take fewer shortcuts, have more patience. Live with fewer distractions, and act with more intention. You may never know when your efforts will bear fruit, but sometimes, after months of labour, a shape appears on a ridgeline in the first light of morning, and you see what you always hoped was there. 🐾

Dr Byron Weckworth is Snow Leopard Lead Specialist for IBCA.



SMART Club for Big Cats

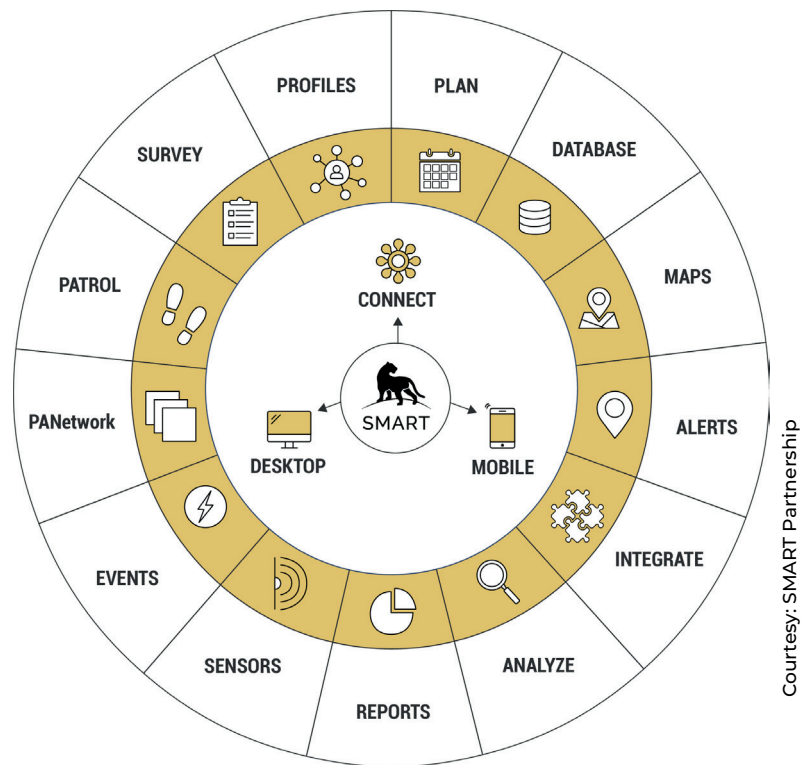
BY CLEO GRAF

Globally, about 75% of protected areas lack systems to measure how well they are managed, and nearly 40% struggle to meet conservation goals. This leaves big cats vulnerable, even inside areas created to protect them. Rangers and communities continue to work tirelessly on the frontlines, but often with limited tools and resources. The SMART Partnership — a collaboration of leading international NGOs — developed the Spatial Monitoring and Reporting Tool (SMART), a combination of software, training, and community support that helps teams monitor threats, safeguard habitats, and respond more effectively.

How SMART Helps Frontline Teams

SMART is a flexible toolkit of mobile apps, desktop software, and cloud systems. It goes beyond law enforcement, supporting teams in:

- **Research** – record wildlife sightings, track movements, collect data for conservation
- **Community engagement** – empower local people to monitor wildlife, conflicts, and resource use.
- **Resource monitoring** – track forests, grazing lands, water, or fisheries for better management.
- **Infrastructure** – monitor fences, roads, and waterholes to detect damage early
- **Human-wildlife conflict** – document incidents to guide fair compensation and prevention.



The SMART platform comprises a range of software and analysis tools designed to assist conservationists in managing and protecting wildlife.

SMART in Action

Nepal – Parsa National Park	Zambia – Kafue National Park	Asia's Tiger Reserves	Beyond Big Cats
Patrol coverage doubled. Illegal activity fell by 90%. Tigers and their prey now have space to recover.	SMART guides rangers to snaring hotspots, protecting lions, leopards, and other carnivores across the park.	From Nepal to India, SMART delivers better data on tiger movements, faster poaching detection, and stronger community engagement.	Also used to monitor gorillas, elephants, marine life, forests. In Nunavut, Canada, it supports Indigenous communities in tracking polar bears, ice, and harvests.

The SMART Approach

- **Technology** – Tools built for tough environments, usable even offline.
- **Capacity** – Training and mentoring that strengthen frontline teams.
- **Community** – A global network sharing knowledge and support.

Challenges Ahead

- **Capacity gaps** – Many areas lack trained staff, equipment, and funding.
- **Limited view** – SMART is sometimes seen only as a data tool, not full management support.
- **Next steps** – More training, stronger partnerships, and new tech like EarthRanger (a real-time GPS and sensor data platform) to boost ranger effectiveness.

The 2030 Goal

By 2030, the world has pledged to protect 30% of land and seas — the global “30x30” target. But this will only succeed if protected areas are effectively managed. SMART’s ambition is to support 2,000 protected areas by 2030. Achieving this will require an investment of about \$13 million over five years to upgrade technology, train rangers and communities, and strengthen its global network. 🐾

Dr Cleo Graf is the Executive Director of SMART Partnership.



Ecosystem Services Approach to Help Big Cats Thrive

BY MADHU VERMA, SWAPAN MEHRA AND PRIYAMVADA BAGARIA

The concept of Ecosystem Service (ES) valuation has helped redefine the way forests, communities and conservation are understood today. Ecosystem Services are defined largely as benefits that communities acquire from ecosystems; this does not imply just resources like minerals, water or timber, but the entire systems that sustain such resources.

Today, ES valuation is considered a good idea for building conservation strategies for the big cats. Big cats are apex predators that regulate prey populations, maintain ecosystem

balance, and trigger trophic cascades that shape landscapes. Their presence helps control herbivore numbers, prevents overgrazing, promotes vegetation health, and sustains biodiversity. Healthy herbivore-plant relationships also enhance carbon sequestration, contributing to climate regulation.

When big cats decline, ecosystems unravel. Mesopredator populations surge, smaller species face new pressures, and habitat degradation accelerates. Human communities are also affected – with less natural prey, big cats may hunt livestock that fuels conflict. The loss of apex predators eventually

erodes vital ecosystem services.

Some conservationists argue that the overemphasis on charismatic predators like the big cats overshadows the role of less iconic species. They urge for a more inclusive, systems-based conservation approach that values the full ecological web.

Vast Tiger Landscape Supports Millions

Among India’s key tiger habitats, the Central-Indian region, which forms the geographical core of the country, supports about 37% of the nation’s tiger population. This region has been identified as an area of global priority for tiger conservation. Spread across states like Madhya Pradesh, Maharashtra, and Chhattisgarh, the Central Indian landscape comprises 14 protected areas, spanning an area of approximately 152,000 km². This diverse landscape not only supports a wide range of flora and fauna but also serves as the source of important rivers, ensuring water security for millions of people.

In the Central India Protected Area Complex (CIPAC) that covers Bandhavgarh and Sanjay Dubri Tiger Reserves (situated in Central India), along with their corridors and buffer zones, ES valuation has helped redefine the way forests, communities, and conservation are understood.

The stronghold for tiger conservation depends heavily on corridors that connect fragmented habitats, enable dispersal and gene flow, and reduce human-tiger encounters. Functional corridors allow tigers to move safely and maintain genetic diversity, reducing the likelihood of conflict in human-dominated landscapes. However, infrastructure projects and land-use changes threaten these corridors. Many corridors intersect village and forest lands, making it essential to integrate local community needs and development goals.

Understanding what the ecosystem provides for both people

and predators is central to long-term conservation. It has been observed that ES modelling strengthens corridor conservation by linking ecological health with socio-economic priorities. These insights have enabled alignment of conservation goals with livelihoods through eco-tourism, sustainable resource use, and policy planning. The CIPAC supports both wildlife and people. Tribal communities rely on forest resources like fuelwood, mahua flowers and tendu leaves and on cattle grazing.

In January 2025, we mapped and estimated the value of ES that these landscapes provide. This work was a revelation: it reframes how we perceive forests, communities, and conservation. Using the VALUE+ framework and the Valuation of Ecosystem Services from Tiger/Snow Leopard Landscapes Manual, we assessed both economic and intangible values. The VALUE+ approach acknowledges that actual ES values exceed quantified estimates, as the future “option values” remain unquantified. Our methods combined market valuation, replacement cost estimates, and spatial modelling (via the InVEST tool), informed by field surveys, household interviews, and secondary data.

Carbon storage emerged as the most valuable service, highlighting CIPAC’s role in India’s climate strategy. Even more critical is genepool protection, underscoring its global biodiversity significance. Other key services include fodder for livestock, natural water purification, and pollination, all of which maintain livelihoods and food systems.

Cultural and recreational values are substantial, as eco-tourism around tiger reserves and spiritual tourism to sacred sites bring strong economic flows. Less visible but equally vital are services that buffer against climate extremes such as floods and droughts. The CIPAC’s strength lies in its regulating and supporting services, which sustain rather than extract from the ecosystem, making long-term functionality the heart of regional planning.

ES data can guide zoning, buffer, and restoration, securing high-value areas for green finance and biodiversity credits.

Payment for Ecosystem Services and similar schemes can reward communities, as in Satpura–Melghat Landscape (Maharashtra, western India), over 100 villages now practice agroforestry that blends horticultural crops with long-term carbon and livelihood benefits.

The CIPAC model is easy to replicate: Map high-value patches, model ES values, monetise them via carbon or biodiversity credits, and monitor progress transparently. Nepal’s buffer communities, Malaysia and Indonesia’s tiger-palm oil corridor planning, and Russia’s Amur tiger habitats all show how ES valuation bridges conservation and development. What is needed now is a commitment to embed ES thinking into national policy, build institutional capacity, and engage communities as equal partners and co-investors in resilience.

By aligning conservation with livelihoods and enhancing ecological literacy, ES valuation becomes a catalyst for sustainable futures—for people and predators. 🐾

Dr Madhu Verma is Senior Economic Adviser and Chief Environmental Economist, Iora Ecological Solutions, New Delhi.

Swapan Mehra is Founder and Chief Executive Officer, Iora Ecological Solutions.

Dr Priyamvada Bagaria is Senior Manager, Iora Ecological Solutions.



A tiger in Pench Tiger Reserve, Madhya Pradesh, India

Photo: Haritri Coswami

Tiger Conservation Can Support Water Security

BY PRAMOD K YADAV

India's tiger conservation strategy focuses on recovering the wild tiger population, which serves as an umbrella species. Conserving tigers contributes to the protection of diverse forest ecosystems, as well as wetlands and grasslands.

A recent study, published by the Sankala Foundation in collaboration with the National Tiger Conservation Authority (NTCA), titled 'Stripes and Streams: Water

Conservation in India's Tiger Reserves,' explores how tiger conservation efforts have impacted the interconnection between forest and water ecosystems. The outcomes show that conservation efforts in 53 out of 54 tiger reserves studied have contributed to water availability along 21,036 km of rivers and 33,248 km of streams within the tiger landscapes. The tiger reserves are also vital in delivering water services to around 340 million people and a large agricultural area

covering approximately 19 million hectares across 18 states in India.

Healthy forest ecosystems have a significant impact on hydrology, as they play a crucial role in shaping water systems. Therefore, forested landscapes, including those with wetlands and grasslands, are vital to the water cycle. They control streamflow, enhance groundwater recharge, and contribute to atmospheric water recycling, including cloud formation and precipitation

through evapotranspiration. They also function as natural filters, reducing soil erosion and water sedimentation, thus maintaining high water quality.

Tiger reserves represent some of India's most ecologically valuable forested landscapes, encompassing diverse ecosystems such as forests, grasslands, and wetlands. These habitats act as natural sponges, absorbing rainfall and recharging aquifers while preventing river sedimentation. Additionally, they play a critical role in minimising the risks of water-related disasters, such as floods and droughts, and in combating desertification and salinisation. Indeed, as apex predators, tigers symbolise healthy ecosystems that provide critical services, including water regulation and soil conservation.

Approximately 600 rivers in India originate from or pass through the catchment areas of tiger reserves, helping to regulate water flow by allowing rainwater to soak in, reducing surface runoff, and supporting river base flow during dry periods. Rivers such as the Godavari and Krishna, which originate in the forests of Central India, depend on forested catchments that overlap with various tiger habitats. Take the Western Ghats, a mountain range that stretches 1,600 km

The conservation efforts have contributed to water availability along 21,036 km of rivers and 33,248 km of streams within the 53 tiger landscapes in India

along India's western coast, approximately 30-50 km inland, traversing the states of Gujarat, Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu. The Ghats are vital tiger habitats that regulate streamflow and water cycles in watersheds, hosting 16 important rivers, including the Cauvery and Nethravathi, which are crucial for local and regional water security.

Therefore, conserving tiger landscapes is essential for ensuring the sustainable management of India's water resources, which are vital for maintaining ecological balance and fostering human prosperity. For example, the Ranthambore Tiger Reserve in Rajasthan conserves water that benefits nearly 300 villages in an arid region of Rajasthan. Moreover, the Periyar River, which originates in the Periyar Tiger Reserve, supports the water requirements of Kerala and southern Tamil Nadu. Additionally, a study published by

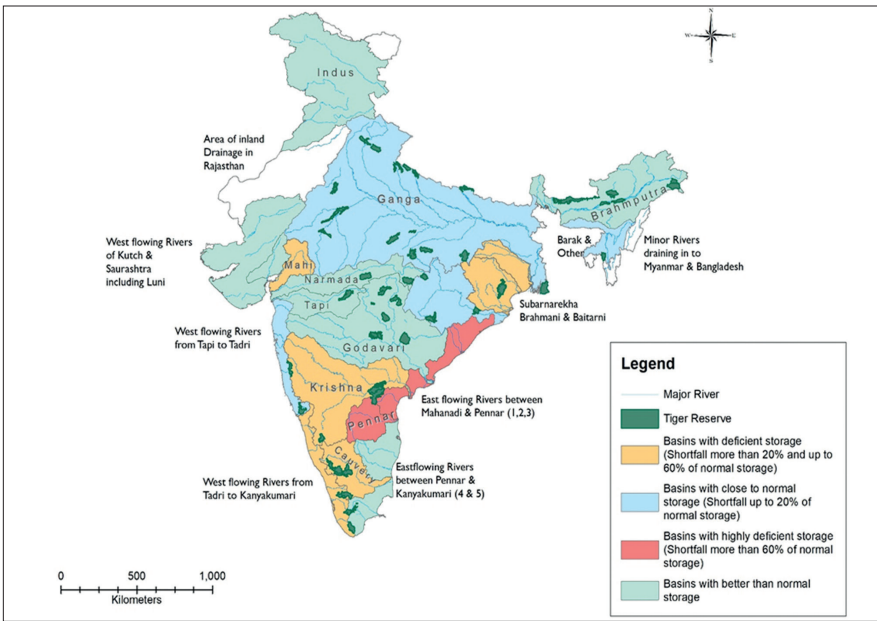
the NTCA estimates that benefits related to water provision from 10 tiger reserves amount to over `330 billion (US\$3.74 billion) annually.

In 2017, the World Wildlife Fund (WWF) reported that the forested catchments of the Corbett Tiger Reserve, along the Ramganga River, provide crucial services for downstream areas of Uttarakhand and Uttar Pradesh. From 1974 to 2010, a downstream dam generated significant economic benefits, including US\$41 million worth of electricity and 88,000 million cubic metres (m³) of irrigation water, without requiring direct investment in catchment treatment or major siltation. By the early 1990s, the Tamirabarani River of Tamil Nadu had started to dry up. Its revival occurred after the declaration of Kalakkad-Mundanthurai forest as a tiger reserve in 1992, which aided the tiger population in the area and enhanced the conservation efforts for the river.

India's overall water demand is rising, with agriculture being the largest user, accounting for around 85% of the country's total freshwater consumption. The country faces a growing seasonal water shortage; by 2030, projected demand is expected to exceed the available supply, potentially impacting millions of people and numerous economic activities. Indeed, investing in tiger conservation by protecting approximately 2.5% (about 84,487 km²) of the total land area (tiger habitat) has contributed to India's water security. The country still has about 380,000 km² of potential tiger habitat outside the purview of Project Tiger.

Bringing these potential tiger habitats under the umbrella of the Project Tiger will help safeguard river and forest ecosystems, which in turn could contribute to addressing future seasonal freshwater shortages in the country. 🐾

Dr Pramod K Yadav is Programme Associate with Sankala Foundation.

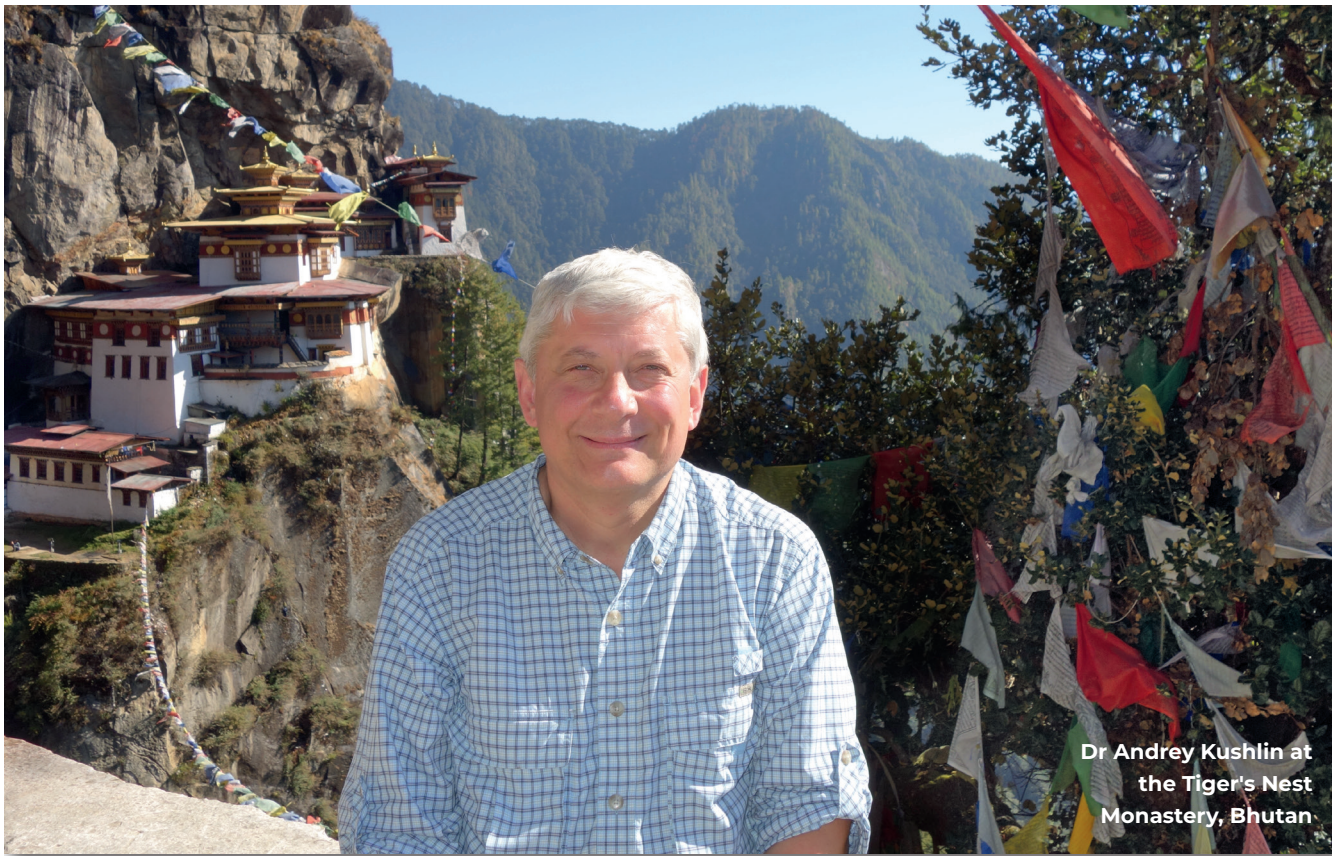


The map depicts rivers originating from or passing through forested tiger habitats in India. Tiger-dense forests are often situated in vital catchment areas that contribute to major river systems, including the Narmada, Godavari, Krishna, and Kaveri. Source: NTCA-WII Tiger Cell, New Delhi



This painting from India represents the strong connection tigers and communities have with the forest-water ecosystem. This art work was part of the annual exhibition by Sankala Foundation, *Silent Conversation: From Margins to the Centre*

‘The great momentum initiated for tigers and snow leopards must not be allowed to lapse’



Dr Andrey Kushlin at the Tiger's Nest Monastery, Bhutan

Dr Andrey Kushlin is Senior Advisor, Strategy and Operations – Environment and Natural Resources (Moscow, Russia). He has spent over three decades working at the intersection of natural resource governance, forestry, and biodiversity conservation. At the World Bank, he co-designed the Global Tiger Initiative (GTI), a landmark effort that reframed tiger conservation as a global development and political priority. The GTI paved the way for transformative actions, including the 2010 St Petersburg Declaration on

Tiger Conservation and the 2013 Global Snow Leopard and Ecosystem Protection Programme (GSLEP). His leadership has focused on building bridges between science, policy, and politics, mobilising finance, and uniting diverse stakeholders to protect landscapes critical for big cats and other species.

Ravina Yadav spoke with Dr Kushlin about his journey, the lessons from rallying world leaders behind tiger conservation, and why trust and accountability are as vital as science in shaping the future of big cats.

Ravina Yadav (RY): How did you

first become involved in big cat conservation?

Andrey Kushlin (AK): I am a geographer by training and passion. Since childhood, I have always had a desire to discover new, untouched places. The remote Sikhote Alin forests in the Russian Far East became my first such discovery at the age of eight. I travelled there from Moscow with my parents and younger brother on the famous Trans-Siberian train, which took us a whole week to cross the distance of 6,300 km.

These forests, located on the Pacific coast, feature a unique assemblage of

boreal and tropical species of plants and animals and serve as a prime habitat for the Amur (or Siberian) tiger, the largest subspecies of tiger in the world and the only one that survives in freezing snow conditions during winters. My childhood impressions of this remarkable tiger landscape have shaped my adult vision of this beautiful world.

As a student and scientist, I focused on forests, earned a PhD in forest geography, but I did not engage professionally in biodiversity conservation until I joined the World Bank in the early 1990s. This work brought me back to the tiger lands of my childhood memories as I led several forestry and biodiversity projects in the Russian Far East. It was then that I fully realised the emotional and political power of tiger as a ‘flagship’ species for broader landscape conservation. Due to their solitary nature, these big cats require extensive, undisturbed areas for survival; thus, conserving large forest landscapes is essential for saving tigers in the wild.

RY: Why is big cat conservation more important now than ever?

AK: My main professional interest as a landscape geographer and international development specialist lies in how big cat conservation priorities can positively influence the sustainability of broader landscape systems. I would not say that big cat conservation was less important in the past. Instead, I would emphasise the greater opportunities now available for a big cats-driven agenda for development, given the early success stories of the global tiger and snow leopard programmes.

RY: Share your memories of the St Petersburg Summit of 2010.

AK: Alarm bells about the tiger crisis had been ringing since the early 1970s, yet global tiger numbers plummeted from about 35,000 to only 3,000 in less than forty years. By the mid-2000s, it was clear the crisis could not be reversed without addressing the forces driving economic development. In 2008, conservation champions convinced then World Bank President Robert Zoellick to take a stand, paving the way for the GTI.

A standing joke in our team was that



Tiger Summit in St Petersburg (November 2010) included Prime Ministers from Bangladesh, China, Lao PDR, Nepal and Russia (President Vladimir Putin was then PM, third from left) and the World Bank President

my job description was to ‘herd big cats.’ But the GTI launch at the highest political level created a powerful movement that united governments and partners behind the Tx2 goal to double the global wild tiger population by 2022. Despite serious initial disagreements—on landscapes versus core areas, or on national priorities—the shared urgency of saving tigers kept everyone at the table. That spirit culminated in the 2010 Tiger Summit in St Petersburg, co-chaired by the Russian Prime Minister and the World Bank President, which adopted the St Petersburg Declaration and the Global Tiger Recovery Programme (GTRP, 2010–2022).

RY: Illegal wildlife trade is still a big

threat. How can countries work better together to combat wildlife crime?

AK: Twelve years of GTRP implementation have demonstrated the existence of reliable and successful mechanisms for combating illegal wildlife trade. For example, evidence-led enforcement driven by related data analysis and tracking mechanisms, including financial transactions and anti-money laundering efforts, is key to controlling organised crime.

The GTRP has helped strengthen regional enforcement networks such as ASEAN-WEN and SAWEN, as well as the International Consortium on Combating Wildlife Crime (ICWC). The ICWC brings together CITES, INTERPOL, the UN Office on Drugs and Crime, the World Customs Organisation and the World Bank. One essential lesson from these efforts is that a strong national coordination mechanism is a prerequisite for effective international cooperation against transnational wildlife crime. A national multi-agency wildlife crime enforcement unit like Wildlife Crime Control Bureau in India and Nepal, which involves multiple law enforcement agencies such as police, intelligence, customs, immigration,



(Left and Right): Dr Kushlin (second from right) during a visit to Nam Et-Phou Louey National Protected Area, Laos. Popular Hollywood actor Harrison Ford (extreme Right) at the Global Tiger Initiative (GTI) launch, Washington DC

conservation departments, and sensitised judiciary, and is supported at the highest government level, has proven successful.

RY: You helped design the Smart Green Infrastructure model. How can it help protect tiger habitats in areas with fast development of linear infrastructure?

AK: ‘Smart Green Infrastructure in Tiger Range Countries: A Multi-Level Approach’ was a pioneering paper by my colleagues (Juan Quintero, Roberto Roca, Alexis Morgan, Aradhna Mathur, and Xiaoxin Shi), launched by the World Bank President at the CBD COP in Nagoya in 2010. It outlined principles for harmonising ecological and economic corridors across transport, water, energy and extractive sectors in sensitive ecosystems such as tiger landscapes.

The mitigation hierarchy rests on three pillars: (i) protect core habitats through ‘No-Go’ zones; (ii) where avoidance is not possible, minimise and mitigate impacts through improved design, then offset remaining losses via biodiversity or financial mechanisms; and (iii) integrate conservation into infrastructure at every level—from national policy and sectoral planning to the project life cycle.

This approach has gained traction in integrated spatial planning in Malaysia’s

Central Forest Spine and in road projects across India, Nepal and Russia, with similar work underway in Mongolia’s snow leopard landscapes. These experiences show the importance of conservationists working directly with planners and decision-makers to achieve mutually beneficial outcomes. In 2016, the World Bank Group, with India’s National Highways

Evidence-led enforcement driven by related data analysis and tracking mechanisms, including financial transactions and anti-money laundering efforts, is key to controlling organised crime

Authority and Ministry of Environment, supported the Wildlife Institute of India in publishing a more comprehensive compendium: *Eco-friendly Measures to Mitigate Impacts of Linear Infrastructure on Wildlife*.

RY: How do you view the current conservation efforts in Russia?

AK: Russia has consistently applied a purposeful, strategic approach to the conservation of its big cats: Amur Tiger, Amur Leopard, Caspian Leopard, and Snow Leopard. Each species is covered by its own science-based conservation strategy and supported by a programme that is overseen by a top government official. The 2010 St Petersburg Summit generated additional political support at the highest level to the protection of all iconic species in Russia. Necessary legislative amendments (such as to the Criminal Code) have been introduced to strengthen the protection of these species and their habitats.

The 2022 tiger forum in Vladivostok has reported “about 750 tigers including cubs” in the Russian Far East, compared to “about 390 adult tigers” in 2010. New challenges requiring serious attention include a decrease in the tiger prey base caused by African swine fever, overhunting of ungulates, and the resulting increase in



(Left to Right) Dr Andrey Kushlin with former World Bank President Mr Robert Zoellick; President of Clemson University, Dr James Clements, and CEO and Executive Director Global Tiger Initiative Council Mr Keshav Varma, during GTI Council Meeting in Clemson University, USA

human-tiger conflict.

RY: Looking ahead, how do you see the role of the International Big Cats Alliance (IBCA) and the tiger conservation coalition in implementing the next phase of the Global Tiger Recovery Programme (GTRP 2.0)?

AK: The tiger range countries already have a well-tested framework for GTRP 2.0. The Global Tiger Forum (GTF), based in New Delhi, coordinates governments, while the GTI Council convenes high-level public and private champions. A similar structure supports the GSLEP programme, with its secretariat in Bishkek.

The recent launch of the IBCA by the Honorable Prime Minister of India creates a valuable opportunity for both GTRP and GSLEP to share lessons in big

cat conservation with decision-makers in other range countries, especially in Africa and Latin America. The IBCA Secretariat would do well to extend this opportunity to the leadership of both programmes. Greater knowledge sharing and peer-to-peer learning through IBCA can strengthen accountability, visibility, and resource mobilisation of GTRP and GSLEP.

Given the shared approaches across big cat species (Cheetah, Jaguar, Leopard, Lion, Puma, Snow Leopard and Tiger), and building on the GTI Council’s experience, IBCA could also convene global leaders in technology, finance, and development to incubate systemic solutions for the survival of big cats worldwide.

RY: What gives you hope, and what concerns you most, about the future of big cats?

AK: The inspirational power of big cats is truly surprising when applied to difficult decisions in economics and development. The fate of any conservation-dependent species, including big cats, is doomed unless we are resolved to tackle these hard decisions. Now that we have early positive experience with tigers and snow leopards, it is our obligation to expand this approach to all big cats and the precious ecosystems they represent.

My hope is that, in the very near future, we can learn to leverage the necessary modest efforts through widely scalable projects and programmes supported by private finance champions. My concern is to ensure that the great momentum initiated for tigers and snow leopards must not be allowed to lapse. 🐾

Ravina Yadav is Research Associate with Sankala Foundation



Ghost of the Taiga— A Quest for the Amur Tiger

TEXT AND PHOTOGRAPHS BY SASCHA FONSECA

There are two wildlife moments I will never forget. The first was hearing the powerful roar of an African lion for the first time while I lay in my tent at night. The second was standing in deep snow in the Russian Far East, silently staring at the massive paw print of a wild Amur tiger. I had goosebumps as I realized I was in the territory of the world's largest big cat.

The Amur tiger project became one of the most demanding chapters of my career. In winter temperatures plunging to -40°C , I deployed custom DSLR camera traps deep in the Ussuri taiga, far from any phone signal, with only the forest for company. Each site was chosen by reading subtle signs — a scent tree, a scratch mark, a fresh track. Months of waiting in such extremes test both equipment and patience. I work closely with local scientists and rangers, and regularly collaborate with the Amur Tiger Center, whose efforts remain critical to the species' survival.

In the 1940s, uncontrolled hunting reduced the Amur tiger population to fewer than 50 individuals. Thanks to decades of conservation work, their numbers have slowly climbed back. Today, between 400 and 700 survive in the wild, though these figures remain disputed, as the tigers are highly elusive and remarkably skilled at avoiding people. Still, threats persist: poaching of tigers and their prey, such as sika deer and wild boar, and habitat loss. Even in what is often considered one of the world's last great wildernesses, forests are shrinking under the pressure of logging and illegal mining, pushing tigers closer to villages and sparking conflict with people. Only a comparatively small part of their actual range is protected within reserves and national parks.

Can photographs help save a species? Not alone. But they can remind us that these magnificent big cats still roam the wild and make us care. And caring is where change begins.

Through this photo essay, I hope to bring people closer to this incredible apex predator.



(Clockwise from Top): An Amur tigress and her spring cub in Ussuri taiga in winter, a stronghold for the world's northernmost tigers, whose range spans Russia, China, and the edges of North Korea

Setting up a camera trap in Zov Tigra National Park. The park protects part of the global population of only 400–700 wild Amur tigers

In recent years, industrial logging has increasingly threatened these forests, pushing tigers closer to villages and raising the risk of conflicts



(Clockwise from Top):

Fairytale Forest. An Amur tiger in the Ussuri taiga in winter, a stronghold for the world’s northernmost tigers, whose range spans Russia, China, and the edges of North Korea

Spring tiger cubs play in the snow of Birsky Sanctuary, Sikhote-Alin Mountains

The largest subspecies of sika deer lives in the Russian Far East. Along with wild boar, they form the main prey base, and their numbers directly influence tiger survival





Photo: Sebastian-Kennerknecht

Human-Jaguar Coexistence Possible with Simple Solutions

At the start of the 20th century, the jaguar's historic range covered about 19 million km², stretching from southern US to southern Argentina. By the 21st century, this range had shrunk substantially to around 8.75 million km², with significant reductions in the southern US, northern Mexico, northern Brazil, and southern Argentina. Much of this decline stems from conflicts with people, as shrinking forests and expanding agriculture push jaguars toward livestock, prompting retaliatory killings.

A study across 11 countries shows coexistence is possible through simple, cost-effective measures. Researchers examined 248 livestock operations, testing strategies from improved husbandry to night enclosures and electric fencing. Every approach reduced losses, and nearly 90% proved cost-effective. In some cases — small farms in Colombia or large ranches in Paraguay and Brazil's Pantanal — attacks stopped completely. Even unconventional methods, like adding water buffalo to cattle herds, helped deter jaguars.

Conservationists stress that success

depends on matching solutions to local conditions and herd size. For communities where a single cow can represent a family's savings, these approaches protect livelihoods while giving one of the Americas' most iconic big cats a real chance to survive.
Read more: <https://doi.org/10.3390/ani15091247>

Scent Marking Habits of Asiatic Lion

In India's Gir landscape, home to the world's only wild population of Asiatic lions, researchers have for the first time comprehensively mapped how these big cats use scent to communicate and coexist in the same landscape. Over two years, camera traps revealed that marking peaked at dawn and dusk, with activity highest in winter during the breeding season. Males were the most active, leaving signals through sniffing, scratching and spraying to attract mates and avoid direct fights.

The animals were selective in choosing marking sites. Rough-barked, aromatic trees like *Syzygium cumini*, often near tracks and water, were favoured because scents last longer and reach more rivals or potential mates. These chemical signposts function as silent messages, helping lions negotiate

territory in a crowded forest.

With the population growing from 327 in 2001 to 891 in 2025, and all lions confined to Gir, such insights matter for conservation planning. Knowing how lions space themselves can help conservationists anticipate conflict hotspots, guide habitat management, and ensure a delicate balance in their last stronghold.

Read more: <https://doi.org/10.3389/fevo.2025.1523653>

Contraceptives to Control Lion Population

In Malawi's Majete Wildlife Reserve, a pioneering conservation effort is using contraceptives to manage the lion population and maintain ecological balance. Since 2012, when African Parks, a pan-African conservation NGO, reintroduced lions after a 30-year absence, their numbers have risen to around 80-100 individuals. This rapid increase has raised concerns over prey depletion and heightened human-wildlife conflicts.

To address these challenges, African Parks initiated a contraceptive programme in 2022, targeting about 80% of the lion population, primarily adult females of breeding age. The method involves deslorelin hormonal implants that suppress reproductive cycles for approximately two years. This approach aims to reduce cub births and extend intervals between reproductions, thereby controlling population growth and ensuring sustainable predator-prey dynamics.

The strategy reflects a shift towards non-lethal wildlife management, emphasising ecological balance and long-term conservation goals. While not without controversy, the use of contraceptives in wildlife management is gaining traction as a viable alternative to traditional culling methods.

Read more: <https://doi.org/10.1071/WR18079>



Photo: Mohnish Kapoor

Limits of Cash-for-Conservation

Financial incentives have become a widely used tool to reduce conflict with big cats and other predators. From India's tiger landscapes to African savannas, herders may be paid for livestock losses, or villages share in tourism revenue, with the idea that such benefits make it easier for people to live alongside carnivores.

A study published in *Frontiers in Conservation Science* offers the first comparative look at how these schemes are received on the ground. Researchers interviewed communities across Africa, Asia and Latin America where people live alongside large carnivores. The results were mixed. Some families valued payments as fair compensation, but others voiced unease: schemes could create dependency, favour some households over others, or even encourage riskier grazing if losses were guaranteed to be covered. Sustainability was another recurring fear—goodwill often vanished once funding ended.

The study highlights that while cash can ease tensions, it cannot by itself secure coexistence. Effective conservation, it concludes, must be built on fairness, trust and locally rooted solutions.

Read more: <https://doi.org/10.1002/wil2.70002>

Victoria Falls Declaration on Wetlands Protection

The 15th Conference of the Parties (COP15) to the Ramsar Convention on Wetlands concluded in July 2025 in Zimbabwe, adopting 13 resolutions aimed at restoring wetlands, enhancing climate resilience, and promoting inclusive governance. The Victoria Falls Declaration calls for greater political commitment, increased funding, and engagement with local communities in wetland management.

Wetlands sustain prey populations that are critical for apex predators such as tigers, leopards, and jaguars. They



Photo: Bandhavgarh Tiger Reserve, Madhya Pradesh

reduce habitat fragmentation, maintain biodiversity corridors, and provide essential resources for both wildlife and human communities.

Integrating traditional knowledge with scientific management has proven effective in conserving these ecosystems. COP15 highlights that wetland protection is essential not only for ecological integrity but also for the persistence of apex predators across their ranges.

Genie, the Genius Combatting Wildlife Crime

In central India's Bandhavgarh Tiger Reserve, a dog named Genie has emerged as a powerful ally in the fight against poaching. Genie is a Belgian Malinois, a working dog breed known globally for its intelligence, agility and loyalty, often deployed by police and armed forces for security work. Part of the Shahdol Forest Circle's dog squad, Genie has been deployed across Madhya Pradesh since 2020 and is frequently called to Bandhavgarh.

Trained in wildlife crime detection, Genie has already helped crack 66 cases and enabled the arrest of 248 suspects — including tiger, leopard, bear and pangolin hunters. His skills have also helped foil several hunting attempts and uncover complex cases, making him a feared name among poachers. They work alongside technologies such as M-STrIPES (Monitoring System for Tigers - Intensive Protection and Ecological Status), a mobile-based system that allows rangers to record field data and strengthen protection measures.

India now has more than 100 such wildlife sniffer dogs trained and deployed across multiple states to support frontline staff in combating wildlife crime. Genie, with her intelligence and impressive track record, shows how combining local innovation, modern technology and unconventional allies can tip the scales in favour of endangered species.

Read more: <https://www.etvbharat.com/en/offbeat/genie-the-pride-of-shahdol-that-protects-tigers-at-bandhavgarh-enn25080302370>

Close Encounters with the Kings

BY ISHANI NANGIA



The latest population estimate from the Global Tiger Forum places the number of wild tigers across range countries at around 5,574 individuals. And although the exact figure is uncertain, estimates suggest that there are approximately 7,000 tigers in captivity in the US alone.

The first episode of *Tiger King* opens with this information that hooks the audience from the get-go. This simple statement forces the viewer to question the true state of big cat conservation in America.

Tiger King starts as a story of an eccentric zoo owner Joseph Maldonado or popularly known as ‘Joe Exotic’ once a well-known breeder and dealer of tigers and hybrids. But it quickly turns into a story of mayhem, crime, ego battles and sheds light on the dichotomies of the conservation landscape in America.

This true crime docu-series was co-directed by Eric Goode and Rebecca Chaiklin over the course of five years! Released in 2020 on Netflix, *Tiger King* still has the viewers on a chokehold and is one of the most popular shows on the platform to this day. The series was also nominated for six real-time Emmy Awards in 2021.

What makes it truly interesting is the use of live footage of Joe and other characters whose real life stories stretch even the most vivid imagination. The sheer rawness of the characters and the bizarre chain of events often makes one pause and wonder—could this really have happened?

Conservationist and hotelier Eric Goode joins Joe to film a reality TV show, which according to Joe was going to be the next big thing in reality TV since The Kardashians! The show was never picked up by any TV channel and ends up as a self-funded project on YouTube (still available).

The show was intended to be a behind-the-scenes look into the life of an over-the-top zoo owner, his work, and what it really takes to run a place with hundreds of big cats and other exotic fauna.

But it quickly unravelled into a series of a mud-slinging, threat-trading spectacle between Joe and his arch nemesis Carole Basking. This rivalry between the two leads to unimaginable events including arson, animal abuse, wildlife trafficking and murder plots.

Carole, another key character in the series, runs a non-profit Big-Cat Rescue in Tampa, Florida, rehabilitating abused or abandoned big cats and makes it her life’s mission to shut down Joe’s zoo. Like every other character in the series, Carole too comes across as multifaceted and is far from saintly. The show hints at her murky past, including alleged involvement in big cat trafficking with her late husband—a shadow that complicates her otherwise activist/ conservationist persona.

What’s truly captivating about the entire series is the grittiness of it all. Joe has a captivating presence in front of the camera, and no part of his life is off-limits—his sexuality, lifestyle, and personal choices all bleed into his work.

The series then dives into the life of Joe and his zoo in Wynnewood, Oklahoma that he has owned for over two decades. At its peak this place boasted more than a hundred tigers, lions, leopards, bears, alligators, chimpanzees, and other exotic fauna.

The zoo made money by charging tickets to visitors but the primary source of revenue came from “interactive wildlife-experiences”, cub-petting in particular. Joe was also involved in illegal trading of big cats which the series later reveals. He also had huge political aspirations and ran for the presidential elections in 2016 and for the governor of Oklahoma in 2018. Joe’s political ambitions were bankrolled by his big cat empire. He toured the mid-west on elaborate road shows, and organized cub-petting events in malls.

Much of the absurdity in *Tiger King* stems from all the chaos and often petty and over-the-top clashes between Carole and Joe who share a life-long passion for big cats but have two very different approaches to big cat conservation.

But as complex and captivating Joe and

7,000
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The series takes a deep dive into the psyche of big cat enthusiasts who are addicted to the power that comes from owning big cats and the ones who will devote their lives to those who do own these exotic pets. For instance, John Reinke, a volunteer at Joe’s zoo who comes back to work the very next day after a tiger rips off his arm or the volunteers at Carol’s Rescue who would work without pay, even on Thanksgiving, choosing the cats over their families. Each character exudes a deep love for big cats, a captivating on camera presence and a cadre of dark secrets.

Tiger King exposes the furry underbelly of a big-cat community that most of us are unaware of and in which the lines between loving wild animals and exploiting them are never quite clear. More than anything, the series is a tale of ego, money, and power—a showcase of hollow grandstanding and rugged individualism, with the big cats caught in the crossfire.

For all its glory in showing the bizarre world of big-cat lovers, *Tiger King* still has one major flaw; it does not appear to succeed in giving us a sense of why things are the way they are. What drew these individuals so strongly to the big cats that they could literally kill for their passion! Or why should it matter to the audience who wins the fight between conservationists and owners? Or about the fate of big cats in America? By the end, you’ll probably have more questions about big cat conservation than when you started with. But isn’t that the hallmark of every great crime story? 🐾

Ishani Nangia is Communications and Outreach Associate at the Sankala Foundation



Images in this article (stills from the series Tiger King) are sourced from @joe_exotic/Twitter



Revival of Arabian Oryx

Once extinct in the wild, the Arabian oryx was reclassified in 1986 as “Endangered” on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species following its reintroduction in Oman, Saudi Arabia, Jordan, Syria, and the United Arab Emirates. In 2011, as its global population grew to thousands, the Arabian oryx became the first animal to revert to “Vulnerable” status after being listed as extinct in the wild. Arabian oryx continues to be the common prey for big cats like leopards. The photograph was taken in Shaumari Wildlife Reserve, Jordan.

PHOTO BY ONDŘEJ PROSICKÝ



Session conducted by IBCA at the 2nd Indian Conservation Conference at the Wildlife Institute of India

Global Tiger Day 2025, Webinar Celebrations Focus on Best Practices

A webinar on Global Tiger Day 29 July 2025 on 'Securing the Future for Tiger Conservation: Knowledge, Best Practices, and Strategies' brought together experts from around the world. Earlier in the day, Minister of Environment, Forest and Climate Change Mr Bhupender Yadav launched a series of books on tiger conservation.

In his welcome address, Dr SP Yadav, Director General of IBCA, General of IBCA, highlighted that tiger conservation brings cascading ecological and economic benefits, contributing significantly to climate resilience. He acknowledged positive population trends in countries like India, Nepal, Bhutan, and Russia, while emphasising that IBCA's role is vital in supporting tiger range countries still facing population decline and critical threats.

Dr Rajesh Gopal, Secretary General, United for Tigers, stressed that effective tiger conservation begins with ensuring a healthy prey base, proper habitat conditions, and region-specific strategies. He stressed that while South Asian countries have made significant progress, Southeast Asia faces severe setbacks, with some nations losing their wild tiger populations entirely.

Dr Madhu Verma, Head, Ecosystem Service Valuation, Iora Ecological Solutions Ecological Solutions presented a compelling economic valuation of

tiger habitats. She revealed that an investment of a single Indian rupee in tiger conservation can yield a return of up to 530 times, as demonstrated in the Sundarbans Tiger Reserve in the state of West Bengal in India. She emphasised the often-unseen value of ecosystem services such as water security, climate regulation, and soil conservation and stressed the need for greater investment and policy recognition of these natural assets.

Dr Sivanathan Elagupillay, Tiger Lead Specialist, IBCA, Malaysia, shared the dire situation of the Malayan tiger, now critically endangered with fewer than 200 individuals remaining. He highlighted key threats like poaching and wire snare traps, and discussed Malaysia's conservation efforts. These include the first national tiger survey, the establishment of ecological corridors, the creation of a national tiger task force, and the designation of the country's first tiger reserve outside India. Today the national football team's mascot is a tiger.

Mr Ugyen Tshering, Chief Forestry Officer, Bhutan, stated that his country is currently home to 131 wild tigers. These tigers are being recorded at a remarkable range of elevations, from as low as 80 m to as high as 4,400 m, with breeding activity observed across these zones.

Mr Soumitra Dasgupta, Director (Programme) IBCA, acknowledged the collective wisdom and commitment shared during the session. The webinar was moderated by Dr Kausik Banerjee, Lead Specialist, IBCA, with the support of Mr Aditya Bisht, Programme Associate, IBCA.

World Lion Day

To commemorate World Lion Day 2025, the International Seminar on Lion Conference was held at Sasan Gir on 11th August 2025, jointly organised by Ministry of Environment, Forest and Climate Change (MoEFCC), the State Forest Department of Gujarat, and IBCA, which played a leading role in convening this global platform. The Seminar was inaugurated in the gracious presence of Mr Mulubhai Bera, Minister for Forest & Environment, Gujarat, Mr Parimal Nathwani, Member of Parliament (Rajya Sabha) and senior officials from MoEFCC, Gujarat Forest Department, and IBCA.

The seminar emphasised the need for collaborative, science-driven initiatives to secure the future of both Asiatic and African lions.

Dr Paul Funston, Executive Director, African Lion Conservation, South Africa, delivered a presentation on 'Perspectives of Lion Conservation in Africa – Past, Present and Future'. Dr Dennis Ikanda, Wildlife Expert, WWF Tanzania, and African Lion Lead Specialist, IBCA, delivered an insightful presentation on 'Transnational Policies and Management Strategies for Lion Conservation in Africa'. Dr Adrian Tordiffe, Veterinary Consultant, Greens Zoological, Rescue and Rehabilitation Centre (GZRRRC) and Dr Utkarsh Rajhans, Veterinary Officer, GZRRRC, Gujarat, presented on 'Veterinary Integration of Nutritional Strategies and Diagnostic-Therapeutic Innovations in the Conservation of Lions'.

Ms Sarah Stoner, Founder and

Intelligence Lead, GO Insight, United Kingdom, delivered a virtual presentation on 'Tracking the Lion Trade: A Global Analysis of Illegal Trade Dynamics'. She provided an in-depth examination of the scale, patterns, and drivers of the illegal trade in lions and their derivatives, drawing upon intelligence-led research and global case studies.

During the Technical Session of the International Seminar on Lion Conservation, Mr Soumitra Dasgupta, Director (Programme), IBCA, provided an overview of the current status of both Asiatic and African lions.

2nd Indian Conservation Conference

International Big Cat Alliance conducted a session at the 2nd Indian Conservation Conference 2025 held at the Wildlife Institute of India, Dehradun, India. The session was organised under the theme 'Big Cat Conservation: Strategies, Challenges, Best Practices and Innovations', with six expert talks that discussed their ongoing work and field experiences. The session's opening remarks were delivered by Dr Kausik Banerjee, Lead Programme IBCA, while Dr Tamali Mondal, Programme Associate, moderated the session.

Dr Dennis Ikanda, Wildlife Species Lead, WWF Tanzania, highlighted key efforts to protect lions and reduce human-wildlife conflict. He spoke about the role of Lion Guardians, trained Maasai warriors who protect livestock, track lion movements, and alert communities when lions are nearby. He also highlighted the use of practical deterrents such as living walls, solar-powered lights, and early warning systems to prevent attacks on livestock.

Dr Patrick Lendrum, Programme Manager, Great Plains Programme, WWF-USA, discussed the challenges, successes, and opportunities in puma conservation. He noted that pumas historically ranged across 23-28 countries, though they are now largely absent from the eastern United States, where they once thrived. Dr Lendrum also highlighted promising tools and strategies being used to support puma conservation, such as remote cameras, GPS collars, improved livestock enclosures,



Mr Bhupender Yadav (third from Left) launched a series of books at the Global Tiger Day 2025

carnivore enclosures, and growing efforts in public education and awareness.

Ms Sarah Stoner, Intelligence Lead, Go Insight, presented Cat Byte, a cutting-edge platform that provides data-driven insights into the trade of big cats. By integrating advanced analytics with intelligence methodologies, CatByte helps identify patterns, assess risks, and reveal key dynamics related to the trade in eight big cat species. Stoner highlighted trends from the past 25 years, shedding light on how big cats have been traded as commodities, examining demand and supply across different geographies. Her presentation underscored the importance of actionable intelligence in tackling the illegal wildlife trade and informing targeted conservation strategies.

Dr Valeria Boron, Jaguar Lead, WWF-UK, presented on 'Jaguar Conservation: Innovations, Opportunities, and Implementation of Biodiversity and Climate Commitments'. She noted that jaguars can also be melanistic and that their range spans 9% of the world's land area, which hosts 28% of global biodiversity. She stressed that conserving jaguars is essential to maintaining global ecological stability and warned that inaction could result in losing the 1.5°C climate goal.

Dr Koustubh Sharma, Director of

Science and Conservation, Snow Leopard Trust, Kyrgyzstan, spoke on the realities and challenges of snow leopard conservation. He emphasised that snow leopards, found across 12 countries, are not only an iconic species but also ambassadors of international cooperation. Dr Sharma highlighted the importance of community engagement in mitigating conflict and reducing negative interactions between people and snow leopards. He also presented findings from a recent genome sequencing study, which revealed that snow leopards have the lowest genetic diversity among the Panthera genus, making them especially vulnerable to environmental changes and disease. Mr Pravir Deshmukh, Senior Counsellor at the CII-ITC Centre of Excellence for Sustainable Development, India, spoke on the business case for investing in big cat conservation. He emphasised the importance of recognising nature-related risks within business value chains and introduced India-specific tools designed to assess these risks. Mr Deshmukh also showcased case studies of Indian organisations that have integrated wildlife conservation into their CSR initiatives, demonstrating how aligning business strategies with biodiversity goals can contribute to both ecological and economic sustainability.

New Office for IBCA

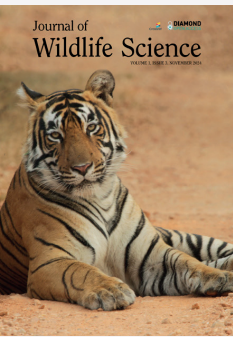
The International Big Cat Alliance has a new office. Member of Central Empowered Committee (constituted by the Supreme Court of India to monitor environmental matters), Mr CP Goyal, inaugurated the newly established office in New Delhi. Other dignitaries present on the occasion included Mr SK Awasthi, DGF&SS and Dr Madhu Verma, Head, Ecosystem Service Valuation, Iora Ecological.

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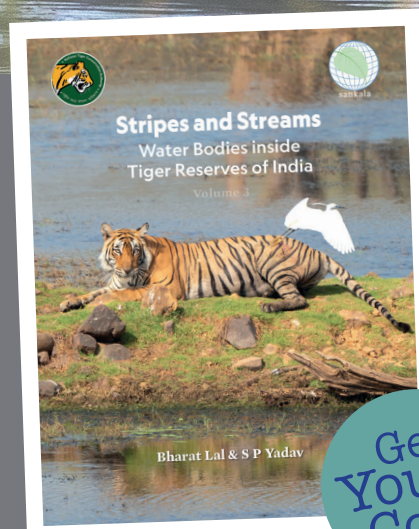


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