STRIPES

A QUARTERLY JOURNAL OF THE NATIONAL TIGER CONSERVATION AUTHORITY • VOL.11 (DOUBLE EDITION) • JAN-JUNE 2021

National Tiger Conservation Authority

Ministry of Environment, Forest and Climate Change

FRONTLINE WARRIORS

How our green heroes protected wildlife during the 2020 nationwide lockdown

India's Travelling Tigers

SPOTLIGHT: KAZIRANGA TIGER RESERVE

HOW SARISKA GOT ITS STRIPES BACK

FW CHAMPION: CAMERA TRAP PIONEER

NEWS, EVENTS & MORE

ON THE COVER
A Bengal tiger (*Panthera tigris tigris*) walks down a jungle path *(Photo: Dr Sanjay Shukla)*

National Tiger Conservation Authority
B1 Wing, 7th Floor, Pt. Deendayal Antyodaya Bhawan, CGO Complex, Lodhi Road, New Delhi 110 003
website: ntca.gov.in
twitter: @ntca_india

CONTENTS

From the Member Secretary ii

Tribute: PK Sen 01

Map: Tigers as Travellers 02

The Big Picture
India's Travelling Tigers 03

Green Warriors
Walking Tall in Adversity 09

In the News 15

Climbing the Tiger Summits 17

Reminiscings
The Forest that Got its Stripes Back 19

Spotlight
Kaziranga Tiger Reserve 23

The Pioneer
FW Champion 29

From the MEMBER SECRETARY

"There cannot be a forest without tigers; and the tigers cannot live without a forest. The forest is protected by the tigers; and the tigers are protected by the forest."
(Mahabharata, Udyogaparvan, 29:47-48)

Our ancient epics recognised the truth that science informs us today – the pivotal role that the majestic tiger plays as an apex-predator in maintaining the health and diversity of our myriad ecosystems.

India took the lead in conserving the tiger in the early 1970s and is today looked upon as a beacon of hope for this endangered big cat. It harbours about two-thirds of the world's tigers in less than one-quarter of their global range. Today, India has 51 tiger reserves across varied ecosystems, which conserve under their protective umbrella other threatened species such as the barasingha, the Bengal Florican, the chowsingha and the dhole, to name only a few.

India's efforts in tiger conservation have paid off; there are an estimated 2,967 tigers in India as per the fourth cycle (2018-2019) of the countrywide assessment conducted by the National Tiger Conservation Authority (NTCA) and Wildlife Institute ofIndia (WII) in collaboration with state forest departments and conservation NGOs.

The NTCA has been at the forefront of tiger conservation. Its work encompasses on-ground protection initiatives, providing funding, managerial and technical support, and science-based monitoring of tigers and their habitats.

To commemorate Global Tiger Day on 29th July, in this issue of *STRIPES*, we celebrate the tiger and those who are on the frontlines to protect it. We highlight the resilience of the tiger, showing the great distances these big cats traverse, and we pay tribute to some champions of tiger conservation.

This issue showcases conservation initiatives across tiger reserves and is dedicated to our brave conservation heroes who toil day and night to protect our forests and wildlife.

Dr S P Yadav
Member Secretary
National Tiger Conservation Authority

TRIBUTE

PK Sen

(4th August, 1941 – 2nd May, 2021)

PK Sen was a staunch defender of the tiger, whose cause he served his entire life: first as an Indian Forest Service officer (1969, Bihar Cadre) and then post retirement in 2001, when he led WWF India's Tiger and Wildlife Division for five years before becoming Director of the Ranthambhore Foundation, where he worked till he passed away on 2nd May, 2021.

In his early postings in Munger and Porahaat, PK (as he was affectionately known) took on the timber and mining mafia and established a reputation as a tough, dynamic officer who got things done. So when there was a crisis in Palamau Tiger Reserve (then part of undivided Bihar) in 1991, PK was picked to handle the severe drought, insurgency and collapse of law and order. By the end of his three-year stint, the reserve ranked amongst one of the best managed at the time. PK was always deeply concerned about his staff, enquiring about their welfare and helping them in times of need. As Bihar's Chief Wildlife Warden he streamlined financial bottlenecks for budget allocations to forests, initiated the formulation and implementation of wildlife management plans in the state's PAs, and ensured timely payment for forest staff.

While being extraordinarily outspoken, PK was adept at working the system – one example being that he convinced the then Bihar Chief Minister not to proceed with the Kutku dam, which would have submerged Palamau's core.

During PK's tenure as Director, Project Tiger (1996-2001), new tiger reserves were created, consolidated and expanded. He worked with state governments to tackle staff shortages and financial bottlenecks, and with enforcement agencies to curb the illegal trade in tiger parts. He enabled the voluntary relocation of villages from Karnataka's Bhadra Tiger Reserve by ensuring timely funding at a time when there was no special allowance for relocations.

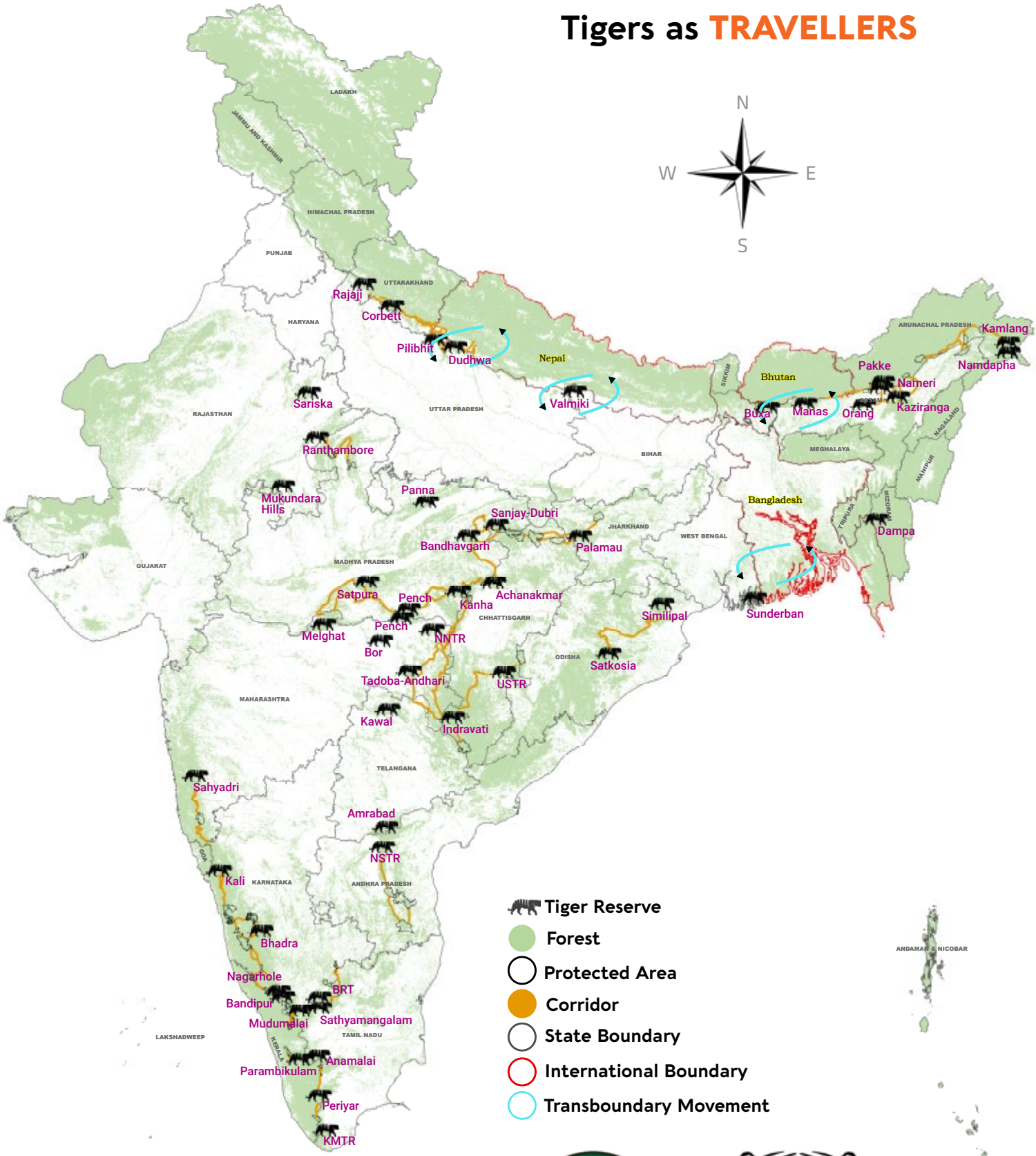
His commitment and work won PK many accolades, including the Padma Shri Award in 2011.

Like the tigers he served, PK was a large-hearted gentleman – lending a hand to anyone in need and mentoring young conservationists. His tough exterior hid a heart of gold; his home was open to all, an *adda* brimming with lively debates accompanied by delicious meals served with love.

PK's loss will be acutely felt, but his rich legacy will live on and guide us forever.

By Prerna Singh Bindra,
Conservationist & Writer

Tigers as TRAVELLERS



(Photo: Dr Sanjay Shukla)

THE **BIG PICTURE**

India's Travelling Tigers

Ravikiran Govekar, IFS, Field Director - Pench and Bor Tiger Reserve

In 2013, when researchers led by the National Centre for Biological Sciences, Bangalore ascertained close genetic exchange between the tigers of Kanha Tiger Reserve (Madhya Pradesh) and far-off Nagarjunsagar-Srisailam Tiger Reserve (Andhra Pradesh), many eyebrows may have been raised. Unlike direct evidence such as radio-telemetry and photographic data, this was scat-DNA based indirect evidence, but equally robust and reliable.

It is likely that this was not a case of direct or short-duration dispersal of the same individual between the Maikal ranges (Kanha) and Nallamala ranges (NSTR). The gene exchange over a distance of 650km may have taken place in relay form. Even so, this

observation highlighted the phenomenal distances that tigers can, and do, cover.

North and Central Indian Habitats

In 2008-2009, there was a great panic amongst the people and restlessness in the power corridors of Lucknow. The cause: a three-year-old tiger that had been observed crossing villages and towns in central Uttar Pradesh, and advancing towards the capital city. He had five human deaths on his head before he was shot and killed in February 2009, near Kumarganj in Faizabad district. By then he had travelled 300km south-east of his natal forests in Pilibhit. Three years later, another tiger from the Dudhwa landscape travelled about 200km to reach the outskirts of Lucknow, where he was captured.

The foresters of Panna Tiger Reserve in Madhya Pradesh encountered an unforeseen situation in 2009, when the male tiger T-3, who had been translocated from Pench Tiger Reserve as part of the effort to re-establish the locally extirpated tiger population of Panna, started to journey back towards his natal forests in Pench. He walked about 170km through a mosaic of forests and human-dominated areas, keeping the forest department on its toes. He was the first radio-collared tiger extensively monitored over such a long distance. T-3 was finally recaptured near Tendukheda, southwest of Panna, after a long-drawn, coordinated operation. He sired several cubs and played a stellar role in repopulating Panna.

The lone tiger that was spotted in Gujarat in February 2019 and found dead a fortnight later near Lunawada (Mahisagar district), might have had his roots in the Ratapani forests of Madhya Pradesh – the nearest source population – about 400km away. This is because Kheoni Wildlife Sanctuary, which has the westernmost population of tigers in Madhya Pradesh and from where the vagrant tiger may have covered a distance of about 330km westwards, is itself dependent on the Ratapani tigers.

South India & Western Ghats

The longest recorded dispersal in South

(Photo: Dr Sanjay Shukla)

(Photo: Dr Sanjay Shukla)

India is the journey of tiger BPT-241 from Bandipur Tiger Reserve, which travelled to Shikaripur in the Shivmogga district of north Karnataka, covering a distance of about 280km (straight-line) in 2010-2011.

Then there was BDT-130, camera trapped as a cub in Bhadra Tiger Reserve in 2006 and recorded in Kali Tiger Reserve (Karnataka) two years later. He had traversed 200km before reaching the Anshi forests, probably via Sharavathi Valley Sanctuary and using the corridor that the proposed Hubbali-Ankola railway line intersects.

In a case of north to south and low density to high density dispersal, tiger T-31 travelled through the Kolhapur-Sindhudurg-Goa corridor from Sahyadri Tiger Reserve (Maharashtra) to Kali Tiger Reserve between 2018 and 2020. The journey, a Euclidian distance of about 225 km, signified the importance of strengthening weak links across tiger dispersal landscapes. This was partially achieved in 2020, when Maharashtra notified six interconnected areas in this region as a Conservation Reserve, linking Sahyadri Tiger Reserve to forests in Goa and Karnataka.

High-altitude and Mangrove Landscapes

In 2016, researchers from Wildlife Institute of India (WII) camera-trapped a tiger in the Askot landscape in Kumaon (alt. 3274m). Then, in 2019, a tiger was camera trapped at still higher elevations (3431m) in the Kedarnath Musk Deer Sanctuary. These cases are interesting not because of the altitudes these tigers attained – tigers have been reported at elevations of 4200m in the forests of Bhutan – but because of the long distances they would have travelled from the nearest source population: Rajaji or western Corbett, Lansdowne Division for the Kedarnath tiger and possibly the Kilpura-Khatima-Surai tiger corridor for Askot valley tiger. Both are about 100km away.

The high elevation tigers of northern Sikkim, reported at an altitude of 3602m during the 2018 monitoring exercise, may have travelled a fairly long distance. However, for the tigers recorded in the Kyongnosla Alpine Sanctuary in Sikkim (3519m) in 2019, the Neora Valley Sanctuary in West Bengal, the possible source area, is not very far off. Similarly, the highest-ever recorded tigers in India (3630m), confirmed by WII researchers in the sub-alpine forests of Dibang Wildlife Sanctuary in Arunachal

(Photo: Sujoy Banerjee)

Pradesh in 2017, indicate local level or shorter distance movements. There is also the likelihood of tigers from Kaziranga travelling long distances, especially after the flood season, to places like Lohit Valley and Kamlang Tiger Reserve in Arunachal Pradesh, and the Naga Hills, and Manipur, and up to Myanmar via Barak Valley. This, however, needs further study.

In case of mangrove ecosystems, official reports indicate that a radio-collared male tiger from the Sundarbans in India actually walked a fairly long distance, over 115km through hostile and difficult terrain, crossing several creeks and islands before reaching the Bangladesh Sundarbans in 2021.

Why Tigers Disperse

Dispersal in search of a suitable habitat with a good prey base and potential mates is a natural process for tigers. Sub-adult males tend to emigrate far from their natal areas to establish their territory; factors such as tiger and prey density in the natal area influence such movements.

Long-term radio-telemetry studies carried out by WII in eastern Vidarbha have highlighted the movement patterns and dispersal behaviour of tigers in forested and human-dominated areas. A majority of these dispersals are over average distances. However, tigers that are long-distance travellers have accrued new insights to the field of tiger conservation. Two interesting cases from Central India are discussed below.

The Chandrapur district in Maharashtra is a high-density tiger source area that is very prone to human-tiger conflict. Sub-adults dispersing through human-dominated areas often contribute to such conflict. A female with four cubs had established herself in the Chandrapur Super Thermal Power Station campus close to Chandrapur city. In August 2018, one of the sub-adult males started his journey towards Warora and Wardha, indulging in cattle depredation. He also killed two persons in the Amaravati district, after which the Chief Wildlife Warden issued an order to capture him. However, he managed to escape to Madhya Pradesh

through Betul and moved to the buffer area of Satpura Tiger Reserve, where he killed two more people and several cattle. He was finally captured by the Madhya Pradesh forest department in December 2018 after a month-long operation, when he entered the Sarani Thermal Power Plant campus. The farthest distance that he had travelled was about 285km from Chandrapur.

The story of the sub-adult male tiger T1C1 from Maharashtra's Tipeshwar Wildlife Sanctuary is equally interesting. T1C1 was in the limelight for travelling an amazingly long distance across two states and ten districts in Maharashtra and Telangana. Apart from the effective use of radio-telemetry, his 393-day journey through 15 divisions also exemplified systematic and pro-active management by state forest departments.

In February 2019, T1C1 was found snared in the belly region. The Tipeshwar park management acted swiftly and he was tranquilised, treated and radio-collared with the help of a WII research team. In June 2019, he left Tipeshwar and began his epic journey from Eastern Vidarbha to Telangana to Marathwada, up to Jalgaon district in North Maharashtra and finally back to Dnyanganga Sanctuary. He had walked 3017km till March 2020 when the radio collar dropped off. His average daily speed in the dispersal phase was 16km and he had a record walking distance of 55km in a 24-hour period.

(Photo: Dr Sanjay Shukla)

The Chandrapur sub-adult was a problem tiger and was constantly monitored. The long distance covered by him in a very short time can be attributed partly to the conflict scenarios and disturbances he was involved in. Tipeshwar's T1C1, on the other hand, faced no conflict even though he travelled largely through open forests, agriculture fields and habitations, and crossed several linear structures. He established a corridor that was non-traditional. He went up to an area where no tiger had been reported in recent years, but finally stabilised in a sanctuary with a good prey base. His smooth journey can be attributed to his excellent behaviour too.

Long-travelling Tigers: Significance

Long-travelling tigers actually travel shorter distances than other migrating species like caribou, wildebeest etc, but these distances are significant when compared with the average dispersal range of their own species.

The routes they take are never a straight line; they move to and fro and explore several adjoining areas. There are two distances to be considered: the **Euclidean distance** or the shortest distance between the initial and the

Tipeshwar's T1C1, the tiger that walked 3017km in 393 days (Photo courtesy: Maharashtra FD & WII)

last recorded location, and the **cumulative distance** that they walk while covering this Euclidean distance.

There is often much hype and misrepresentation in the media about such distances. Data is wrongly compared or unscientific data is used. When comparing dispersals, one has to take into account factors like average walking speed, relative difficulty of the terrain, whether the route was a forested corridor or a human-dominated area, and whether the movement was natural or influenced by human actions. Comparing shorter distances covered in difficult terrain with the longer distances travelled over regular terrain is not correct. Tigers in the Sundarbans or the Himalaya, for instance, may not disperse very far over short periods of time due to the terrain they have to traverse.

It is also worth noting that researchers count distances over a specific period of time, and tigers, of course, continue to walk even when they are no longer being tracked. T1C1, the Tipeshwar tiger who had walked 3017km when his collar dropped off, actually walked another 340km from his natal forests.

* * *

The journeys of long-travelling tigers tell us about the quality of the connecting landscapes that were traversed, the potential of the habitats and corridors that were used, the level of genetic exchange, and, of course, the behavioural traits of individual tigers. They provide insights that can be used to guide landscape-level priority actions and approaches for managing tiger dispersals under intra-state, inter-state and transboundary setups. It would be especially worthwhile if we use such information for effective landscape-level planning in future.

ACKNOWLEDGMENTS

The author is thankful to AJT Johnsingh, Alok Kumar, Aditya Joshi, Bivash Pandav, Bilal Habiib, Rakhi Nanda, Raja Mohan, Uttam Sawant, Hemant Kamdi, Sonali Ghosh, Rajendra Garawad, Tapan Das, Debmalya Roy Choudhury, Rajnish Singh, Gopi GV and Vaibhav Mathur for their valuable inputs.

(Photo: Farhan Khan)

INDIA'S GREEN WARRIORS

Walking Tall in Adversity

Ninad Avinash Mungi[1], Kausik Banerjee[2], Ashok Kumar[1], Anup Kumar Pradhan[1], Ashish Prasad[1], Deb Ranjan Laha[1], Kainat Latafat[1] and Krishna Mishra[1]

[1]M-STrIPES team, Wildlife Institute of India
[2]Scientist, Tiger Cell, National Tiger Conservation Authority

Frontline forest staff in the nation's tiger reserves were confronted with heightened conservation challenges during the 2020 nationwide lockdown to combat the Covid-19 outbreak. Data aggregated from the state-of-the-art M-STrIPES wildlife protection and monitoring program reveals their stellar response.

Clear blue skies, clean rivers, the absence of noise pollution and animals reclaiming human spaces – to hear it told on social media, the nationwide lockdown to arrest the spread of Covid-19 in India (and concurrent lockdowns in March-May 2020 across several nations globally) was an unqualified boon for the environment. The unprecedented cessation of human activities did result in measurable short-term

declines in atmospheric nitrogen oxides and carbon dioxide as well as pollutant levels in several rivers. On the frontlines of wildlife conservation, however, the situation was far more complex.

Multiple studies, from Africa to the Americas and from the Russian Far East to Southeast Asia, have shown that lockdowns in fact had unfavourable consequences for wildlife. For instance, an alarming spike in wildlife crime was observed in several nations.

This can have multiple causes, particularly in a lockdown situation with concomitant health and economic crises. For instance, as eco-tourism was halted in most Protected Areas (PAs) around the country, national parks and sanctuaries were suddenly deprived of the supplementary vigilance that the presence of naturalist guides and tourists would ordinarily have provided. Further, the loss of tourism revenue due to the pandemic-induced lockdown directly impacted two pivotal conservation resources in these areas: daily wage workers and fringe communities.

A Heightened State of Affairs

In several parts of the country, communities that reside on the margins of PAs have a significant dependence upon wildlife tourism, whether through employment in the hospitality sector or as naturalist guides or contract workers with the forest department. The drying up of a critical revenue stream had the effect of causing these communities considerable financial distress. The exodus of migrant labourers from cities back to their native places around protected forests during the lockdown – effectively increasing the number of persons present in each household – only exacerbated the issue. (A recent study in Central India[1] showed that as many as 75% of surveyed villages had households with family members whose occupation relied on seasonal migration.)

Thus, the lockdown months saw the unfolding of a complex socio-ecological scenario involving increased people per household in forest vicinities, decline in local monthly incomes, limited access to markets and other facilities, and a perceived increase in human-wildlife conflict with wildlife being more frequently seen in human-use areas.

Economic insecurity and an increased requirement of natural resources among fringe communities can manifest in an inordinate and unsustainable demand on protected forests. Any increase in bushmeat poaching, a traditional source of protein for many South Asian communities, is of particular concern since it not only results in wildlife killings in the short-term, it can establish pathways into Protected Areas for the illegal international wildlife trade in the long-term.

During this heightened state of affairs, therefore, any laxity in the protection of wildlife areas would have been an unmitigated disaster. The situation necessitated round-the-clock monitoring by state forest departments, who are the key custodians of India's protected forests. In order to address the rise in unlawful activities in and around PAs, frontline staff had to maintain intense vigilance for the entire lockdown period, risking their lives during the pandemic. While most of us could 'work from home', our green warriors unflinchingly proceeded with their field patrols.

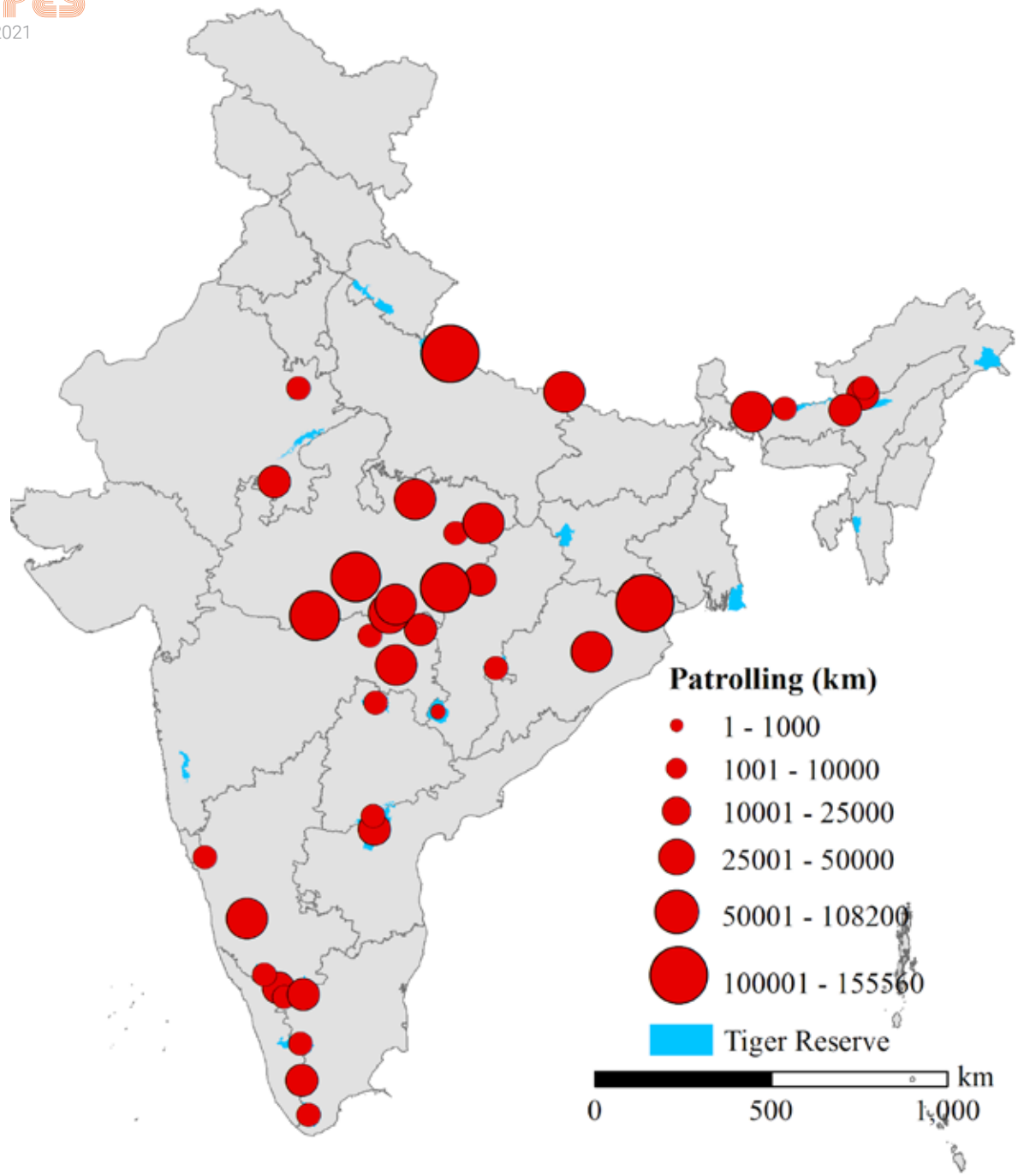


Figure 1: Average patrol efforts (in km) invested by tiger reserves during the lockdown in 2020

We know this because, as is now the norm, frontline staff across tiger reserves digitised their patrol activities using the M-STrIPES mobile app.

M-STrIPES: A Digital Panacea

M-STrIPES (Monitoring System for Tigers: Intensive Protection and Ecological Status) was launched by the National Tiger Conservation Authority (NTCA) and Wildlife Institute of India (WII) in 2010 (www.mstripes.in). It has been rolled out across PAs and continuously fine-tuned based on user feedback over the last decade. The NTCA Tiger Cell and M-STrIPES team at WII provide uninterrupted technical support (which continued during the lockdown) to the state forest departments so as to reduce any inertia in the program's implementation.

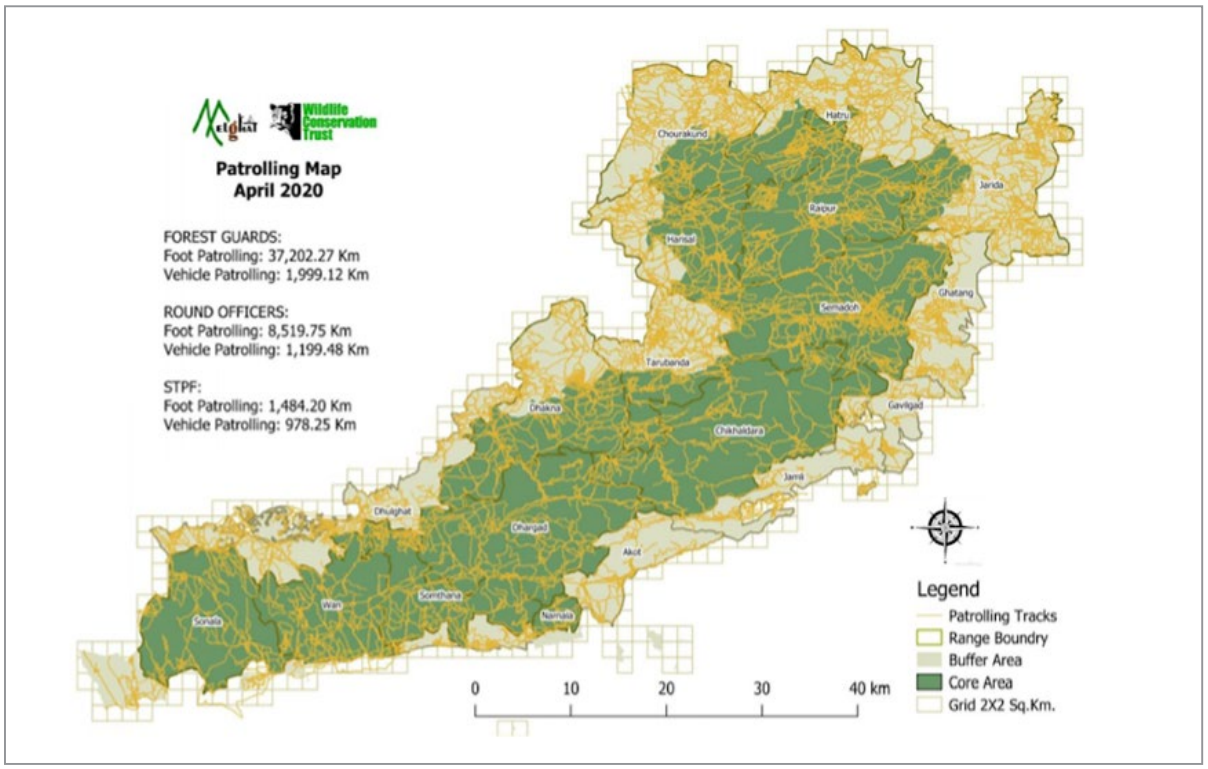
M-STrIPES is a state-of-the-art program designed to assist in wildlife protection and monitoring, and the management of Protected Areas. Using the M-STrIPES mobile apps provided to them, frontline staff walk their beats as usual, recording their patrol routes through GPS as well as observations made and actions taken through geo-tagged, time-stamped photographs.

GPS-based patrolling helps in mapping patrol routes and maintaining a spatial database of patrol tracks. When these tracks are analysed through Geographic Information Systems (GIS) at the range/division office, a wealth of information on spatial coverage and intensity of patrols emerges. Patrol maps, along with observations recorded by the guards, can help PA management teams analyse trends and patterns to improve future protection efforts. While frontline staff have been recording their observations using traditional methods for generations, M-STrIPES lends a new significance to their daily beat. No one can deny their arduous patrols, which now endure through GPS mapping. Their photographed, geo-referenced observations can also be used as evidence in wildlife crimes. M-STrIPES thus not only strengthens wildlife crime investigation but also inculcates a sense of achievement and shared responsibility for wildlife conservation among all frontline staff.

What the Data Shows

To evaluate patrolling efforts, wildlife related crimes and wildlife sightings during the nationwide lockdown, we accessed M-STrIPES data collected by various tiger reserves in March, April and May 2020[2]. Patrol details from 35 tiger reserves were analysed. The average patrolling efforts invested across these tiger reserves during

Figure 2: Patrol coverage in Melghat TR during the lockdown month of April 2020



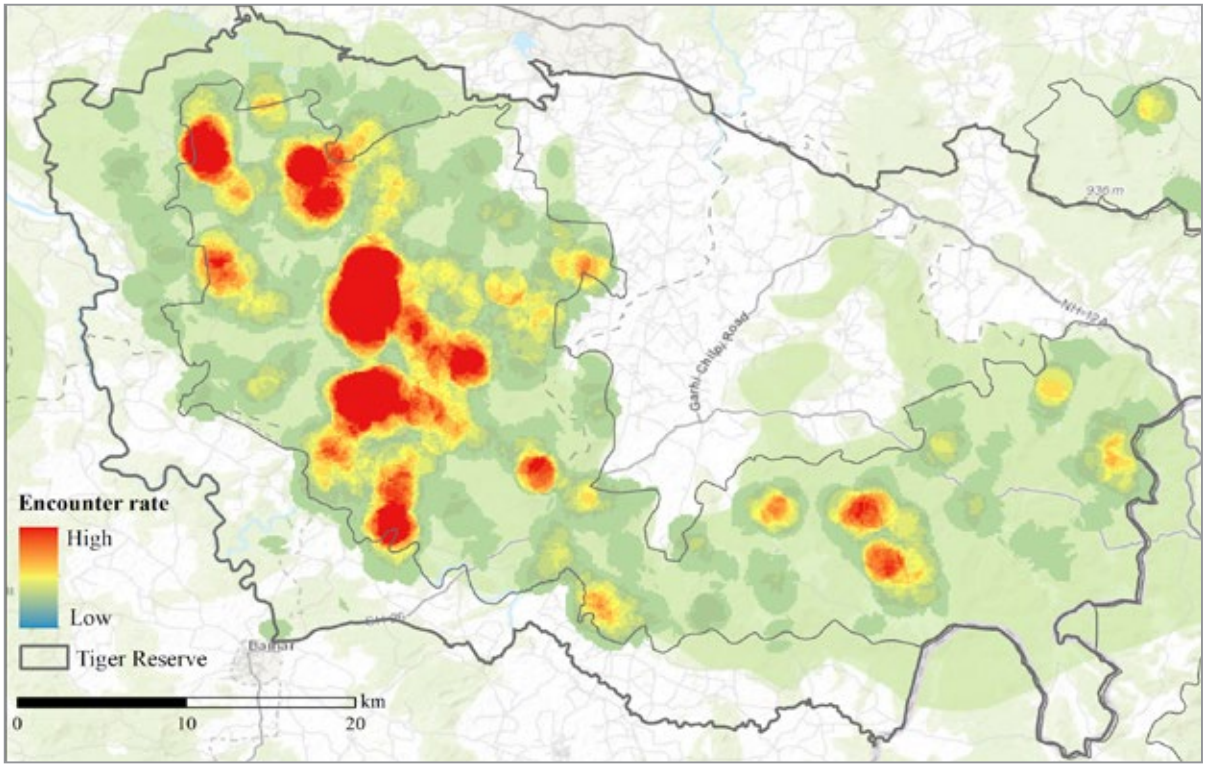


Figure 3: Recorded intensity of tiger signs in Kanha TR (Mar-May 2020), obtained from daily patrols

the lockdown months was 5,60,590 (±2,130) km *(Figure 1)*. Frontline staff in Dudhwa Tiger Reserve had the highest patrol effort at ~77,000 km/month. However, patrolling efforts in general correlated to the size of the tiger reserve, with large reserves like Similipal, Melghat and Kanha showing the highest patrolling efforts, while smaller reserves like Bor and Orang naturally had less patrolling.

In addition to patrol effort, it was important to understand patrol coverage. Tiger reserves that shared their M-STrIPES database or patrol intensity maps at a 1km scale were found to have differential coverage. Reserves like Kanha, Melghat, Bor, Pench (MH) and Dudhwa had >90% coverage of their area; reserves like Similipal, Satpuda, Navegaon Nagzira, Tadoba, Pench (MP) and Bhadra had >75% coverage; reserves like Achanakamar, Satkosia, Panna and Sanjay Dubri had >50% coverage. Patrol coverage was well-distributed across core and buffer regions during the lockdown *(Figure 2)*.

The data also revealed that on average, 6,000 (±276) wildlife sightings and 15 (±9) illegal activities were recorded across the analysed tiger reserves during the lockdown. When the species information across this time period was synthesised for these reserves, the distribution of many endangered species could be mapped *(Figure 3)*.

Green Champions to the Fore

Through their own arduous efforts and by adopting easy-to-use mobile-technology, frontline staff have showed that technology can efficiently be percolated to the remotest forests and grassroots levels in India. The consequent transparency in information about protection and wildlife indicators of tiger reserves has paved the way to

(Photo: Chestha Singh)

revolutionising the quest for adaptive management in India. If this momentum is maintained across all PAs and beyond, India will have forged an enviable intelligence network to protect its wildlife areas.

Howsoever technical it may sound, M-STrIPES highlights and strengthens the importance of the boots on the ground. Recognising and strengthening the grassroots human resource deployed to protect our natural heritage is not only central to the success of this technology, but is the spirit of this transformation.

While society at large has rightfully lauded the contribution of health workers, the police and other government agencies during the pandemic, the efforts of forest staff in safeguarding the nation's natural heritage have remained unknown and unacknowledged. Not that this is unusual for frontline staff, for walking the toughest beats during the most trying times, and putting their lives on the line day after day is what they do.

With M-STrIPES, at least, the evidence is beyond doubt: frontline forest staff across the nation's tiger reserves came to the fore with an intense effort for wildlife conservation during the 2020 nationwide lockdown.

REFERENCES

1. Defries, R, Agarwala, M, Baquie, S, Choksi, P, Dogra, N, Preetha, GS, … Urpelainen, J (2020). Post-lockdown Spread of COVID-19 from Cities to Vulnerable Forest-Fringe Villages in Central India. Current Science 119(1): 52-58.

2. WII-NTCA (2020). Report on Patrolling Tiger Reserves during the National Lockdown. National Tiger Conservation Authority, New Delhi and Wildlife Institute of India, Dehradun.

IN THE **NEWS**

Vaccination Camps, Camera Traps, Carnivorous Snails and More

1 Tiger Ramesh, an IT veteran and wildlife enthusiast, sponsored a vaccination camp at Bandipur Tiger Reserve, Karnataka for frontline forest staff and their families. The camp was held in association with the CLINIKK and ACT teams. A similar camp was held at Nagarhole Tiger Reserve.

2 On World Environment Day, 5th June, 2021, Bandipur Tiger Reserve organised a plantation drive and a webinar on the 'Role of tiger reserves in environment protection and biodiversity conservation'.

3 A week-long training in weapons handling was organised for the frontline staff of BRT Tiger Reserve, Karnataka in coordination with the District Armed Reserve.

4 The ICICI Foundation has provided 23 motorcycles for wildlife and forest protection duties to Sariska Tiger Reserve, Rajasthan.

5 A tiger's image was captured in Dampa Tiger Reserve, Mizoram, on a camera trap laid by forest guard and wildlife enthusiast Zakhuma Don. This is the first such image captured in Dampa TR since 2014.

6 A male tiger in Panna Tiger Reserve, Madhya Pradesh has been observed raising four cubs after the death of their mother.

7 The National Tiger Conservation Authority (NTCA) has approved the conversion of Ramgarh Vishdhari Sanctuary in Rajasthan's Bundi district into the fourth tiger reserve in the state.

8 *Perrottetia rajeshgopali* sp.nov., a new species of a carnivorous land snail, was recorded from the Sahyadris in Maharashtra. The species has been named after Dr Rajesh Gopal, Secretary General, Global Tiger Forum.

9 Conservation NGO Wildlife Trust of India, under its Conservation Heroes COVID Casualty Fund, has paid a relief amount of Rs 1 lakh each to the families of deceased forest section officer MA Nafees and tollgate assistant S Balakrishna from Amrabad Division, Telangana. Memorabilia was also issued in the name of these green warriors.

10 Rajasthan and Maharashtra have reopened their tiger reserves for tourism after the NTCA left the decision to individual states. Uttarakhand has decided to keep Corbett and Rajaji Tiger Reserves open for tourism round the year.

11 A camera trap image has established the presence of a tiger in the 26.22 sq km Barnadi Wildlife Sanctuary in Assam.

12 Amrabad Tiger Reserve, Telangana will soon launch 'Tiger and Leopard' stay packages comprising trekking, safari rides and jungle camps for visitors.

Compiled by Paridhi Jain, SRF (NTCA)

1


Latitude
Longitude
Altitude

2

3

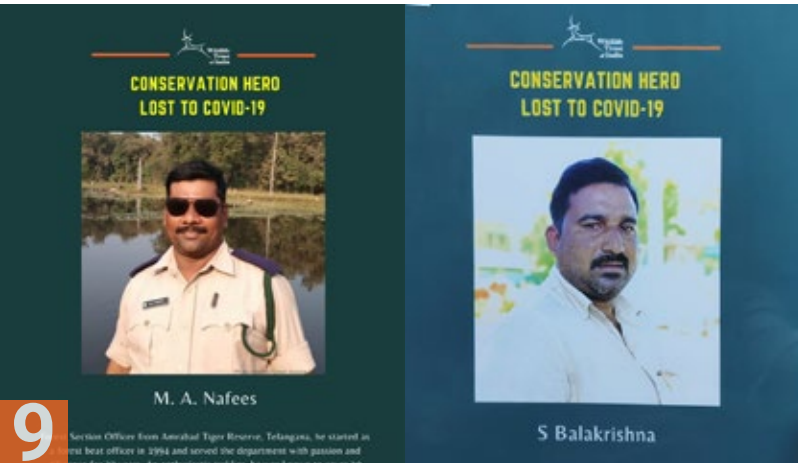
4


Wild cat's image caught at Dampa Tiger Reserve after 2014

5

6

8


CONSERVATION HERO
LOST TO COVID-19
M. A. Nafees

9

CONSERVATION HERO
LOST TO COVID-19
S Balakrishna

11

GLOBAL **PERSPECTIVE**

Climbing the Tiger Summits

From St. Petersburg 2010 to Vladivostok 2022

Andrey Kushlin, Honorary Member, Global Tiger Forum

Preparing an Impactful Summit

The St. Petersburg Tiger Summit took 2.5 years from the announcement of the idea in 2008 to its delivery in 2010. Below is the list of the key stepping stones in our collective climb towards the 2010 Summit.

9 June 2008 – President Zoellick of the World Bank (together with representatives of range countries, partner organisations and celebrities) launches the Global Tiger Initiative (GTI) at the Smithsonian Zoo in Washington DC, proposes convening a Tiger Summit in 2010, the Year of the Tiger according to the Asian calendar.

Summer-Fall 2008 – a committed GTI secretariat set up and funded by the World Bank; targeted dialogue with Tiger Range Country governments and key international partners established.

April 2009 – International Workshop on Wildlife Crime in Pattaya (co-hosted by the Government of Thailand and the World Bank) initiates the community of Tiger Range Countries and their joint process of goal setting.

October 2009 – Global Tiger Workshop in Kathmandu (co-hosted by the Government of Nepal and the World Bank) produces the consensus among the Tiger Range Countries and international partners on the directions and main components of the Global Tiger Recovery Program (GTRP) comprising 13 National Tiger Recovery Programs (NTRPs).

January 2010 – 1st Asian Ministerial Conference on Tiger Conservation in Hua Hin (co-hosted by the Government of Thailand and the World Bank) – the Ministers of Tiger Range Countries commit to a Tiger Summit, accept Russia's official offer to host it (backed by the President's Decree), authorise detailed preparation of GTRP and NTRPs.

February-June 2010 – active development of the 13 NTRPs and the GTRP supported by targeted training of Tiger Range Country focal points at the Smithsonian Zoo in Washington DC (funded by the World Bank)

July 2010 – Pre-Summit Partners Dialogue Meeting in Bali (co-hosted by the Government of Indonesia and the World Bank) – senior officials of Tiger Range Countries review the draft GTRP, negotiate the draft Summit Resolution, take the negotiated draft Resolution back to their capitals for review and endorsement.

October 2010 – GTRP Drafting Meeting in New Delhi (co-hosted by the Government of India and the World Bank) – focal points of Tiger Range Countries review/revise the final draft of the GTRP ("conference edition") and authorise its printing for the Summit.

October 2010 – President Zoellick of the World Bank convenes in Washington DC a meeting of CEOs of key partner organizations, confirms their commitment to supporting the GTRP implementation.

21-22 November 2010 – at the Ministerial segment of the Tiger Summit in St Petersburg, the Ministers approve the twelve-year GTRP (2010-2022). The idea of a second Tiger Summit in 2022 is floated, to review the results of the GTRP implementation.

23 November 2010 – on the final day of the Tiger Summit in St Petersburg, the attending Heads of Government (Bangladesh, China, Lao PDR, Nepal, and Russia), with facilitation by the World Bank President and in the presence of Tiger Range Country Ministers, GEF CEO and other dignitaries, endorse the St Petersburg Declaration, announce the start of the GTRP implementation.

Engagement Since the Summit

Since the Tiger Summit in 2010, the Tiger Range Countries have been jointly tracking the GTRP implementation through the mechanisms of periodic Stock-Taking Meetings and Ministerial Conferences:

May 2012 – 1st Stock-Taking Meeting in New Delhi, India.

October 2012 – 2nd Ministerial Conference in Thimphu, Bhutan (attended by the Prime Minister of Bhutan).

September 2014 – 2nd Stock-Taking Meeting in Dhaka, Bangladesh (attended by the Prime Minister of Bangladesh).

March 2016 – 3rd Ministerial Conference in New Delhi, India (attended by the Prime Minister of India).

January 2019 –3rd Stock-Taking Meeting in New Delhi, India.

The Countdown to 2022

The Russian Federation started its official preparations for the 2022 Summit a full three years ahead of the event. President Putin's Decree #412 dated 3rd September 2019 authorised hosting an International Forum on the Conservation of the Tiger Population in 2022 in Vladivostok, "with the objective of furthering collaboration with international partners towards the conservation and recovery of the tiger population". It is widely expected that the tiger forum may be held on the margins of the Eastern Economic Forum that is held annually in Vladivostok in early September, with the participation of the President of Russia and the invitation of national leaders of Asian countries.

Based on the experience with the 2010 Summit preparation and time-tested mechanisms of engagement and mutual accountability between the Tiger Range Countries during the GTRP implementation, the following critical path of actions and milestones can be envisaged in the remaining climb to the next Tiger Summit in 2022.

- The 2022 Summit outputs may include a high-level political document (declaration of heads of state/heads of government) and a new global program.
- The Summit outputs will be based on a thorough evaluation and wide public discussion of the GTRP results and also synchronised with the new Post-2020 Global Biodiversity Framework (to be adopted by CBD COP 15 in China).
- The GTRP Results document will be published prior to the start of the negotiation on the Summit outputs, ideally 5-6 months ahead of the Summit.
- The GTRP Results document will be produced through a collective process driven by the TRCs and coordinated by the GTF/GTIC and contributing partner organisations.
- The GTRP Results document will be based on the results of the GTRP Progress review and the NTRP Progress reviews.
- The NTRP Progress reviews will be carried out by the TRC Focal Officers with contributing country partners.
- The GTRP Progress review and the GTRP Results document will be prepared by an international working group chaired by the GTF/GTIC and comprising qualified assessment experts nominated and supported by TRCs and partner organisations.

REMINISCINGS: **SARISKA TIGER RESERVE**

The Forest that Got its Stripes Back

Rajesh Gupta, IFS, former Deputy Director, Sariska Tiger Reserve (2005-08)

Photographs by Hemant Singh, AIGF (NTCA)

I am the westernmost limit of tiger distribution in India, nestled in the world's oldest fold mountain range, the Aravallis, formed approximately two billion years ago in the Proterozoic Eon of the Precambrian Era. Let me dive into the depths of time and take you on a journey of my glory, downfall, struggle and success – my journey from zero to 23 tigers in a span of 13 years, as I celebrate the 13th anniversary of my rebirth in 2008. That year, on the 28th of June, the first successful Tiger Reintroduction Programme in independent India took its first, bold steps on my soil.

My forests have always been turning points in the lives of individuals and institutions. The legendary Kailash Sankhala was

overcome with guilt after shooting his first tiger from a *machan* on an *Acacia* tree in Madhogarh. He touched the tiger's body in contrition and promised never to repeat the murder, dedicating his life to the cause of tiger conservation from that moment. He went on to become the first Director of Project Tiger and was later awarded a Padma Shri for his work. Then there was the extinction debacle of 2005, which changed the course of tiger management in India, leading the National Tiger Conservation Authority (NTCA) to revamp the conservation strategy for all tiger reserves.

History: The Bullet and the Axe

The Pandavas are said to have passed the secret year of their exile in my forests, the forests of the Matsya King Virata and of Pandupole. I conceal the medieval history of Mughals and Maharajas in the forts of Kankwari and Bhangarh, in Sariska Palace and the Shikar Oudhies. Akbar and Jahangir once visited me to hunt tigers and leopards.

I was a part of the Alwar Princely State and was managed as a hunting reserve through a separate *Shikarkhana* with *Shikar paltans*. The British were invited to hunt tigers and leopards on my soil. Shooting blocks in Sirawas, Siliserh, Khoh, Ajabgarh, Rampur, Narainpur and Akbarpur were opened up for hunting by the erstwhile imperial forest department in the second fortnight of every month – for a mere 95 rupees for a tiger and 55 rupees for a leopard!

Voiceless animals were shot, both adults and cubs, sometimes entire families were wiped out. What a sport, where all the rules were in the favour of the shooters! I wept silently amidst the cacophony of crimes.

My Dhok (*Anogeissus pendula*) and Khair (*Acacia catechu*) forests were plundered repeatedly on a rotational basis in the name of management, the sole purpose being to swell forest revenues. Before 1900 I was managed as Roondhs (Grass reserves) and Banis (Fuel and Game preserves). Under the first forest officer of Alwar State, FL Coombs, these departments were merged into the Forest Department in 1903. Coombs proposed working plans for the felling of timber under the Selection system and for firewood under the Coppice with Standards (CWS) system among other prescriptions. Later, different silvicultural prescriptions institutionalised the CWS system. Annual Coupes were marked by officers and staff for firewood, charcoal and *katha* (extracted from the Khair tree), which resulted in the exploitation and degradation of my best and most easily accessible forests by private contractors.

My forests were spared the axe only after the 1970s, even though I had been declared a Reserved Forest in 1955 (approximately 100sq km) and upgraded to a Sanctuary in 1958. In 1978 I was included in the list of Tiger Reserves under Project Tiger, five years after my lucky nine counterparts including Ranthambore in Sawai Madhopur. My managers said that the prospect of copper mining had perhaps prevented my inclusion in the initial stages. Fortunately, the samples of ore from nine holes bored by the Geological Survey of India in 1972-73 established the metallurgy to be uneconomic, which is how my treasures were saved. Today, I flourish as one of the densest forests in Rajasthan.

The Fall

Thousands of people have visited me

down the years, but I have felt somewhat unappreciated. Perhaps my forests had less tiger sightings to offer due to the anthropogenic disturbances caused by villages located inside. Two *guadas* (cattle camps), Kalighati and Slopka, were relocated in 1966-67 and Karnakwas and Kiraska villages were relocated in 1976 to Bandipul, Dulawa and Sirawas. But my happiness was ephemeral as several relocated families returned and settled close to an existing village, Kundalaka, where they established Naya Kundalka. That was a jolt to tiger conservation and it would be 31 years before the next relocation, when the inhabitants of Bhagani village were relocated in 2007. Today, there are still 26 villages within my borders, exerting tremendous biotic pressure on my forests. The villagers, of course, have their rights as do the wild animals. My new team of protectors is trying assiduously to relocate them and I see greater progress being made.

Numerous tigers, tigresses and their cubs have roamed my forests down the ages. They have always had sufficient prey, which was supported by the nutritious *Anogessius*, *Capparis* and *Zizyphus* leaves. I have had one of the highest prey densities amongst the important tiger reserves of the country. But from 2002 to 2004 poachers infiltrated my various boundaries and shot all my tigers. They first butchered the tigers and leopards on the periphery and finally, in 2004, reached the heart of Sariska in the Kalighati-Malajorka plateau, where they killed the last tiger.

The poachers used to come in groups of five to ten and lay leg-hold traps. At night they would descend from the trees on hearing the distressed roars of the tiger caught in the trap's jaws. They would shoot it in the mouth so that the skin was not damaged, thereby fetching them a good price. Leopards, being smaller, were clubbed with sticks on the head. I could hear the gunshots echo through my serene valleys but my protectors did not pay heed. Gradually, my forests were emptied of tigers.

The Rebirth

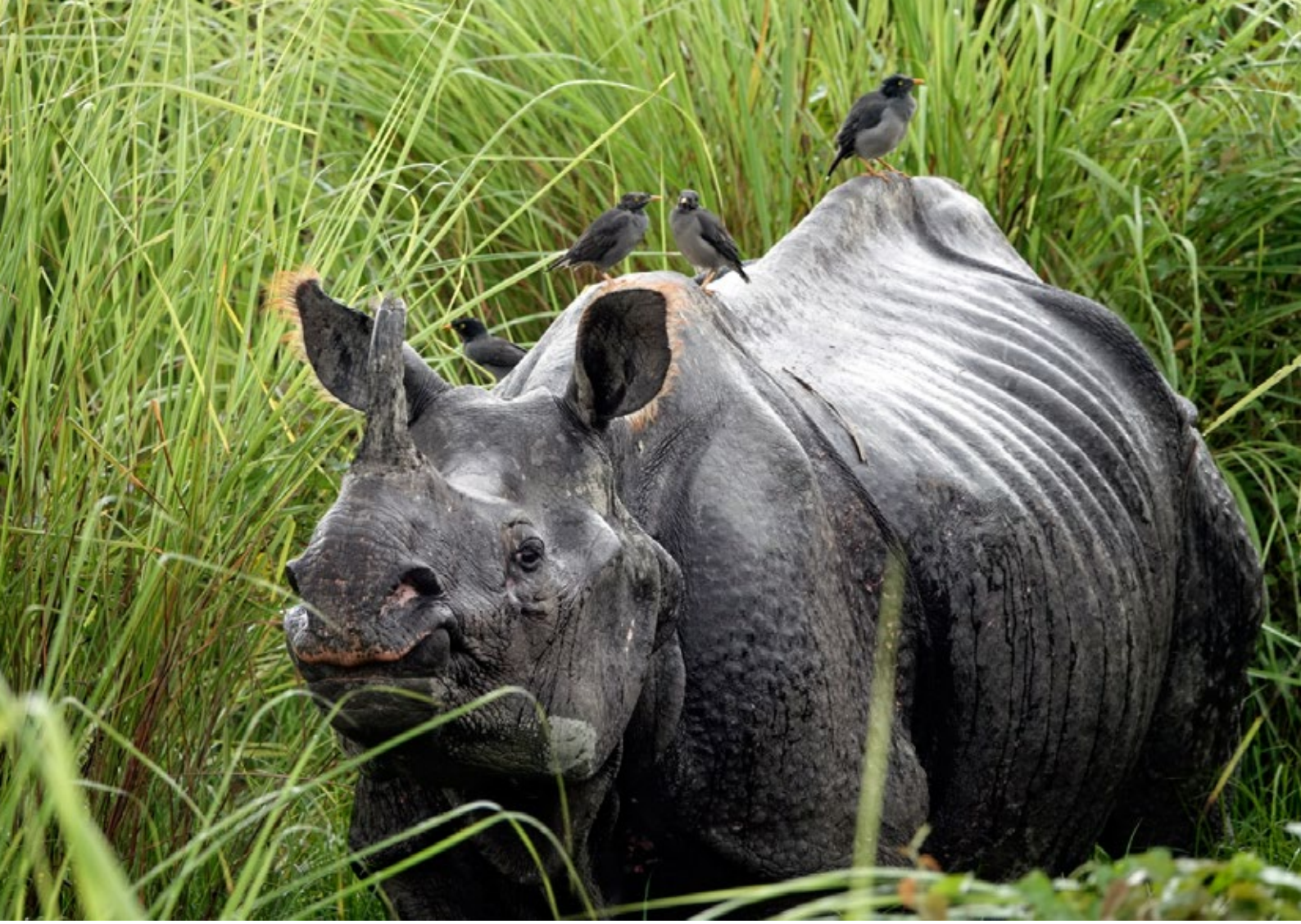
The dark days from November 2004 to June 2008 were spent in agony, thinking of the nadir of my downfall. However, a team of dedicated men came into the picture and I could feel the stirring of new hope. Suddenly my forests were abuzz with activity. Night patrols by frontline staff on foot and officers in vehicles lifted my spirits. The entire protection framework was revamped. There were frequent raids in the villages along my fringes and arrests of dreaded poaching gangs. Leopards, who were now the kings of Sariska, roaming in areas they dared not enter when the tiger was around, were now scientifically monitored. Moreover, since I had always provided good fodder to herbivores, the prey population especially sambar had increased in number, thereby augmenting large prey availability. Dr AJT John Singh, a dedicated scientist who would

visit me almost every year from the Wildlife Institute of India would say, "Sambar conservation is tiger conservation".

After a gap of 3.5 years, I could see the preparations for two one-hectare enclosures at Nayapani. Finally, on 28th June, 2008, an MI17 helicopter landed amidst the rains and unloaded its precious cargo: a tiger. At 1.13pm the King set foot in his lost kingdom and there was joy in my forests once again. The loud alarm calls of sambar, chital and langurs echoed through my valleys. The melancholy had turned to melody. The rains poured onto the soil on which a historic massacre had once occurred. I wept, for Sariska was reincarnated.

But there were still difficult times ahead. On 14th November, 2010, ST-1, that first male tiger who had brought me such joy, was murdered by poisoning, jolting the tiger reintroduction programme. After a brief, stormy period, the programme continued. Till date, Sariska has been supplemented by nine tigers from Ranthambore over a span of 13 years and the number of progeny has increased by 22. Sadly, three cubs and five adults have been lost but there are 23 tigers in my forests today. Researchers say that due to the stress caused by anthropogenic disturbances, the reintroduced tigers, especially females, have high faecal glucocorticoid metabolite (fGCM) concentrations, leading to low reproductive abilities. My counterpart in Panna Tiger Reserve faced the same shame of extinction after me and reintroduced tigers in 2009, a year after my reincarnation. Due to its large inviolate spaces, however, the tiger population there has crossed 55 in a span of 12 years.

I long to see villages from my core area relocated and the villagers leading better lives outside my borders, with secured livelihoods. I dream of greater protection to my core natal areas for tigresses giving birth to more cubs. I dream to see a litter size of four, instead of the current two, for my tigers. I dream that my forests will flourish, with a carrying capacity of 50 tigers.



A Greater One-horned Rhinoceros moves through a grassland in Kaziranga (Photo courtesy: KTR Authority)

SPOTLIGHT: **KAZIRANGA TIGER RESERVE**

The Land Where Unicorns Thrive

P Sivakumar, IFS (CCF & Field Director, Kaziranga Tiger Reserve), **Arun Vignesh CS**, IFS (DCF & Divisional Forest Officer, Nagaon Wildlife Division), **Ramesh Kumar Gogoi**, AFS (DCF & Divisional Forest Officer, Eastern Assam Wildlife Division), **Dr Smarajit Ojah**, Assistant Professor, Nagaon Girls College

Kaziranga, a name known around the world as a conservation success story, is located in the Northeast Indian state of Assam. It is a glittering symbol of dedication towards the conservation of wild animals and their habitat and has gained particular renown as the single largest Protected Area (PA) to have provided long-term, viable conservation for the Greater One-horned Rhinoceros. Kaziranga was recognised as a UNESCO World Heritage Site in 1985.

The script of Kaziranga's conservation history was first penned in 1905 by Lady Mary Curzon, wife of the then Viceroy of India Lord Curzon, who travelled all the way

to this landscape to witness the glory of the Greater One-horned Rhinoceros, the only known terrestrial unicorn species. Kaziranga was declared a Reserve Forest in 1908 and upgraded to the status of a Game Sanctuary in 1916. After India gained its independence, Kaziranga was declared a Wildlife Sanctuary (WLS) in 1950 and a National Park (NP) in 1974. In 2007, the park and its adjoining PAs and reserve forests were together declared a Tiger Reserve (TR).

Kaziranga Tiger Reserve is spread over four districts – Golaghat, Nagaon, Sonitpur and Biswanath – and covers an area of 1055.89 sq km. Its core area comprises 482.04 sq km while the buffer consists of 573.86 sq km. In recent years, an additional area of 247.08 sq km has been brought under the management of the three divisions (Eastern Assam Wildlife Division, Biswanath Wildlife Division and Nagaon Wildlife Division, which are subdivided into 11 forest ranges) under the Kaziranga Tiger Reserve Directorate, through various additions to the NP and WLS. An area of 625.58 sq km has been declared as the Critical Tiger Habitat of Kaziranga Tiger Reserve.

Kaziranga is connected through terrestrial corridors with the nearby Karbi Anglong Hills, which act as natural highlands for wildlife during the annual monsoon floods. It is also connected with Orang and Nameri Tiger Reserves through riverine corridors of the Brahmaputra and Jia Bhoreli respectively. The Hon'ble Chief Minister of Assam has undertaken special initiatives to expand and consolidate these connections between the Kaziranga landscape and the adjoining landscapes of Orang TR, Nameri TR and the Karbi Anglong Hills.

The Ecological Landscape

The Kaziranga landscape is a dynamic product of the interplay of forces of the Brahmaputra River, its geomorphology and underlying geo-tectonics. It comprises diverse habitats including grasslands, woodlands, wetlands, riverine tracts and natural hills. Such a complex habitat mosaic supports a rich diversity of floral and faunal

Aerial View of the Potahi wetland in Burapahar Range (Photo courtesy: KTR Authority)

A member of Kaziranga's dedicated team of frontline forest staff (Photo: Udayan Borthakur)

One of the highlands created to help wildlife seek refuge during monsoon floods (Photo courtesy: KTR Authority)

life. The landscape is home to 38 mammal species, 553 avian species, 64 reptile species, 41 amphibian species, 42 piscifaunal species and more than 550 species of flora.

The Asian Elephant, Greater One-horned Rhino, Bengal Tiger, Asiatic Wild Buffalo, Eastern Swamp Deer and Gangetic Dolphin make up Kaziranga's iconic 'Big Six' mammalian species. The tiger reserve is home to more than 80% of the world population of Greater One-horned Rhinos (2,413 individuals as per the 2018 rhino census) and harbours the source population of Bengal Tigers of other tiger habitats of Northeast India. It also has the last natural population of Eastern Swamp Deer, of which a few have even been translocated to Manas Tiger Reserve.

Furthermore, Kaziranga is located on the confluence of the East Asian Flyway and Central Asian Flyway, due to which a large number of migratory birds visit this region every winter. In the recent waterfowl census, 93,491 birds belonging to 122 species were counted in the tiger reserve. This represented a significant increase in the bird population and was duly acknowledged by the Hon'ble Prime Minister of India.

Wetlands are integral components of the Kaziranga ecosystem. Most of these have seen an overall degradation due to natural and anthropogenic threats such as siltation, aquatic weed growth and illegal fishing. The Kaziranga Tiger Reserve authority has undertaken steps to regenerate and revive degraded wetlands through regular desiltation, water retention measures and strict control of illegal fishing.

The Brahmaputra's Overflow

The annual flood is a natural phenomenon that occurs during the monsoon season in Kaziranga, with as much as 80-90% of the tiger reserve getting submerged. The flood plays an important role in the landscape's ecology by cleansing the grasslands and wetlands, recharging water bodies, and adding nutrients to the soil through the deposition of new silt. It also maintains the soil structure and controls the undesirable invasion of woody vegetation into grasslands.

However, due to the bifurcation of the

Elephants crossing NH37 through the Kanchanjuri wildlife corridor (Photo courtesy: KTR Authority)

Kaziranga-Karbi Anglong landscape by National Highway 37, a significant number of wild animals perish due to drowning and road accidents as the floodwaters rise. The Kaziranga Tiger Reserve authority has adopted several measures to reduce wildlife casualties due to floods. Short-term measures include management of traffic on NH37 through the issue of time cards, setting up of barricades, intensive highway patrolling and installation of sensor-based automatic barricades. Long-term measures include the creation of about 150 highlands for wildlife to seek refuge on during floods, and the construction of more than 35km of road-cum-highlands at strategic locations. The notification of nine identified corridors between Kaziranga and the Karbi Anglong Hills, and the creation of elevated highways at strategic points along the existing national highway are also under consideration.

Prior to the onset of floods, volunteers and staff are imparted training in handling wild animals in distress. As the floodwaters rise, species such as rhinos and hog deer are rescued and rehabilitated at the Centre for Wildlife Rehabilitation and Conservation, which functions under the Kaziranga Tiger Reserve Directorate.

The tiger reserve's frontline staff stay in their camps and perform their protection and anti-poaching duties even during the highest floods. Country boats are their only means of transportation during these times.

The Frontlines of Wildlife Protection

Apart from regular frontline staff such as foresters and forest guards, the foot soldiers of Kaziranga include personnel from the Special Rhino Protection Force (SRPF), Assam Forest Protection Force (AFPF) and Home Guards. Community-based Local Protection Squads are also deployed to assist frontline staff.

Frontline staff serving in Kaziranga are imparted regular training in aspects of wildlife management including wildlife crime control, animal census, weapons handling etc, with the support of the National Tiger Conservation Authority (NTCA), Wildlife Crime Control Bureau (WCCB) and other organisations. The welfare of frontline staff is of paramount importance to the tiger reserve authority and in this regard, a Staff Welfare Society has been formed with the objective of supporting the staff during times of need. Keeping health and safety in mind, regular medical camps are conducted by the administration and medical kits are provided for staff.

Kaziranga faces a sustained threat from organised wildlife crime networks that specifically target its rhino population. In order to effectively combat such threats, the tiger reserve is blanketed with a dense network of permanently staffed anti-poaching camps and forest beats. Forest personnel serving in Kaziranga are equipped with sophisticated firearms such as the Ghatak assault rifle and the SLR (Self Loading Rifle). The Government of Assam has provided the staff with immunity from arrest without magisterial inquiry, so that they may take requisite action against illegalities. Personnel from the AFPF and SRPF are deployed in anti-poaching camps and joint patrolling is regularly carried out with support from the Assam Police and concerned district administrations in vulnerable fringe areas. Such proactive protection measures have resulted in a drastic decrease in incidents of rhino poaching – from 27 in 2013 to two in 2020. In this era of technological revolution, modern ways and means have been adopted to efficiently manage the tiger reserve.

Electronic eye technology and drones are deployed for improved surveillance. Thermal cameras, night vision instruments, sensor based automatic barricades etc are used as well. Anti-poaching camps inside Kaziranga are also being modernised with the installation of solar power and digital wireless communication systems. In order to ensure mobility in diverse conditions, the tiger reserve authority has provided frontline staff with all-terrain vehicles, 4-wheel drive vehicles, speedboats and floating camps.

Participatory Conservation

The lives and livelihood of people living in the fringe areas of Kaziranga are intertwined with its natural resource base. Ecotourism forms an important source of income for fringe dwellers through activities such as wildlife safaris and hospitality services. Ever since Kaziranga was declared a tiger reserve, there has been a fourfold increase in the number of tourists visiting the Protected Area. Efforts have been made in recent years to diversify tourism activities and explore new tourism avenues in the buffer area, through novel initiatives such as the Ethnic Food Centre at Natun Danga (Burhapahar Range), Katakhal Recreational Tourism (Gorajan Range) and Bhumuraguri River Tourism (Dhania Range) – all of which are run through the Eco-development Committees (EDCs) established by the Kaziranga Tiger Reserve authority. As a result of such initiatives, the Union government has named Kaziranga among the 17 iconic sites across India that will be developed as world-class, model tourism destinations.

The Assam Forest Department also supports fringe communities by undertaking skill development and alternative livelihood

A female Greater One-horned rhino and her calf in floodwaters (Photo courtesy: KTR Authority)

activities through the 108 EDCs set up by the tiger reserve authority. Furthermore, the authority has been conducting regular awareness and capacity building activities among the local communities, in collaboration with non-governmental organisations and institutions such as WWF-India, Aaranyak, Wildlife Trust of India, TSA, Bhoomi, LBCS, Nature Learning Centre and The Corbett Foundation. One novel step is the Nature Orientation Initiative (NOI), wherein children from fringe villages are provided the opportunity to camp and interact with conservation experts and field staff. One of the NOI participants, Mridusmita Gogoi, was declared the Biodiversity Ambassador of Assam in 2020.

The Kaziranga Tiger reserve authority has also placed special emphasis on engaging with the global community and disseminating authentic information through social media networks.

* * *

One of the few remaining unmodified natural areas in Northeast India, Kaziranga Tiger Reserve, and the intertwined story of its dynamic landscape, flourishing wildlife and the myriads of people whose lives and livelihoods are dependent on it, holds a special place in the hearts and minds of the people of India.

Its contribution to bringing the Greater One-horned Rhinoceros back from the brink of extinction at the turn of the 20th century to now harbouring the single-largest population of this species has been nothing short of spectacular. Despite a multitude of challenges, be it the ever-present poaching threat, riverbank erosion, invasive species, tourism pressure, heavy highway traffic or livestock grazing, Kaziranga Tiger Reserve has achieved exemplary conservation success, and stands out in the Protected Area management scenario of the country.

THE PIONEER

FW Champion

India's 2018-19 tiger estimation exercise, conducted by the NTCA and WII in collaboration with state forest departments and conservation NGOs, made it to the *Guinness Book of World Records* for being the largest, most comprehensive camera trap wildlife survey. The pioneer of the camera trap, now a widely used technique worldwide, was FW Champion, who served as a District Forest Officer in the then United Provinces.

Using tripwires and flash photography in the 1920s, Champion obtained many remarkable photographs of tigers as well as other wildlife, not an easy task at the time as he was to remark later when he moved to East Africa after India's independence:
"I long for my friends, the tigers of India, which can at no time be photographed easily."

Champion was a conservationist when *shikar* was the fashion, speaking against hunting and in favour of limiting gun licenses. He inspired his friend the legendary hunter Jim Corbett to pick up a camera and become a voice for conservation. Champion's experiences are chronicled in *With a Camera in Tigerland* and *The Jungle in Sunlight and Shadow*.

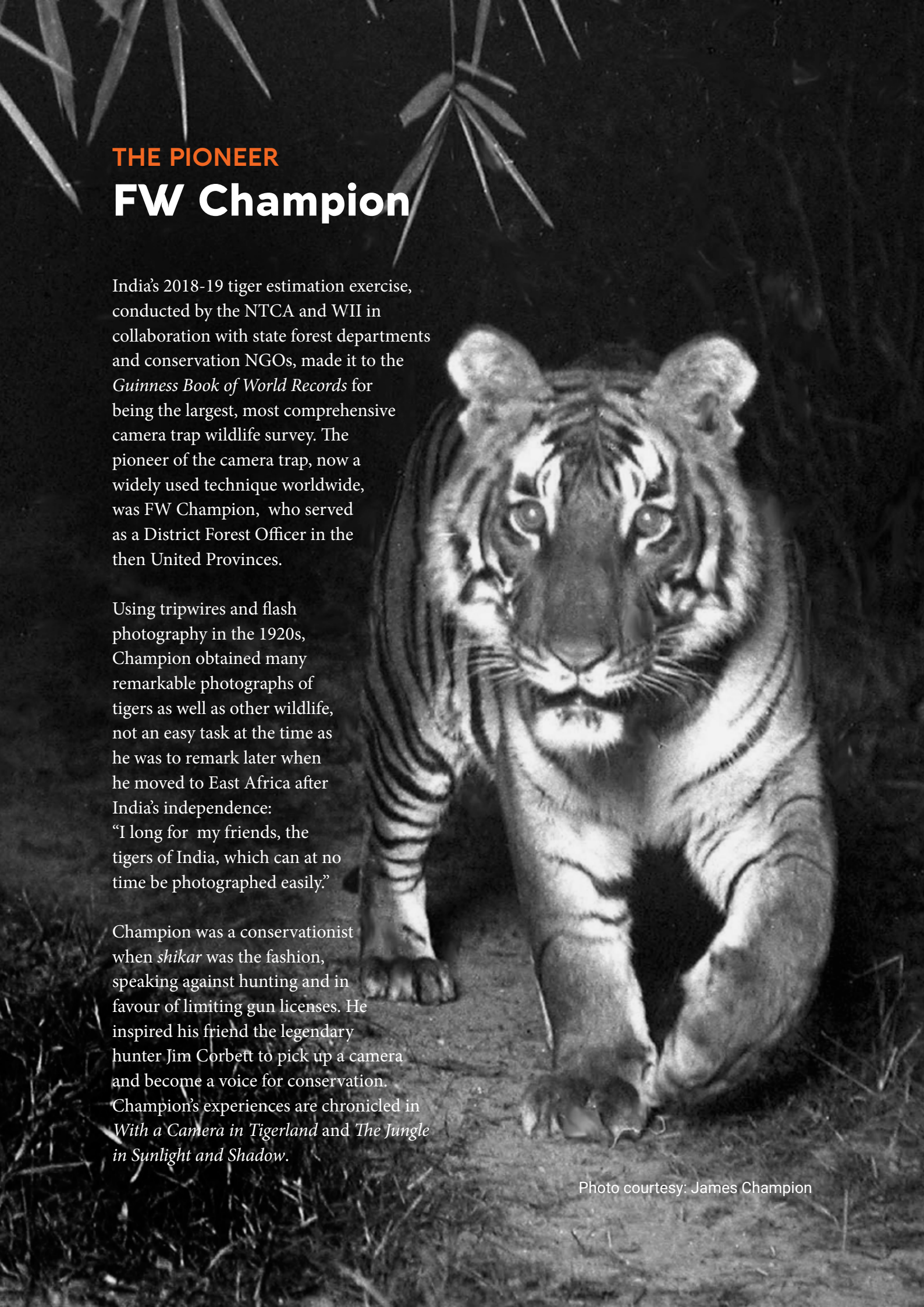


Photo courtesy: James Champion