



WILDLIFE CONSERVATION TRUST ANNUAL REPORT

2018-19



CHAIRMAN'S MESSAGE



Dear Friends,

The need for protecting, conserving and restoring wild habitats is being felt more urgently now than ever before. The mounting anthropogenic pressure on natural ecosystems and looming climate crisis calls for humanity to put up a united front. It is our responsibility and much forgotten courtesy to hand over this planet to the future generations in the state that we 'borrowed' it in.

WCT's conservation vision and ethos i.e. protecting tiger's forests, ends up protecting whole ecosystems whose generous services we all revel in. Think water, climate and food security.

Over the past few years, we have expanded our ambit through solid collaborations with various organisations, institutions, communities and people including state and international governments. Our focus and efforts now also encompass enabling the conservation of lesser known species by being the wind under the wings of young researchers and conservationists.

The dedicated team at WCT spends months and years building solid scientific data on which sound conservation strategies and sustainable decisions can be based. They have been engaging in capacity building of forest staff and community development interventions, and creating awareness about our fascinating natural world and wildlife conservation issues.

I invite you to join our mission to create healthier, more prosperous forests for the tiger, and thereby for one and all.

Hemendra Kothari

PRESIDENT'S MESSAGE



Dear Patrons,

The air we breathe and the water we drink come from forests such as the ones protected to safeguard one of the most charismatic large carnivores on planet Earth – the tiger. In the past five years, India has achieved the impossible. It has not only safeguarded tiger habitats, but also managed to increase the tiger population. There are approximately 4,000 tigers left in the wild. They live in 13 countries. However, India holds the enviable distinction of harboring nearly 65 per cent of all wild tigers on this planet.

While India has done exceedingly well to bring the tiger back from the brink of extinction, the pressures on this magnificent large cat have only intensified with passage of time. India's tigers are under constant threat from several issues including a) poaching to feed the international wildlife trade (IWT); b) poaching of their prey for local consumption; c) forest degradation due to uncontrolled grazing pressure, fuelwood collection and man-made forest fires; d) forest fragmentation due to large developmental projects; and last but not the least, e) retaliatory killings because of the growing human-tiger interactions.

WCT uses camera traps to count tigers and leopards, and helps the government to maintain a consolidated database of large carnivores living both inside and outside Protected Areas within the CIL. Our scientists spend extensive periods of time and effort collecting data on forest cover and waterbodies, man-made linear infrastructure, human activity and carnivore densities. The GIS platform then integrates these datasets to create a composite, landscape-level perspective of the concerned area.

Empowering communities living in and around forested areas is at the heart of our mission and hence community and forest staff health, education and livelihood feature high on our list of holistic conservation interventions.

We have put together this report to give you a snapshot of the conservation work done by WCT in the course of 2018-19. We are committed to assist the Government in meeting the United Nation's Sustainable Development Goals (UNSDGs) designed to be a "blueprint to achieve a better and more sustainable future for all." Our projects and programmes are all aligned with these goals, as indicated across our report. We hope that our work provides an impetus to different stakeholders including the government, NGOs, business houses, multilateral agencies and local communities to collaborate to secure natural ecosystems that form the bedrock of the world's economy.

Cheers!

Anish Andheria

Trustees

Mr. Hemendra Kothari

Mr. Bittu Sahgal

Ms. Aditi Kothari

Ms. Shuchi Kothari

Advisory Board

Mr. Subramaniam Ramodarai

Ms. Naina Lal Kidwai

Mr. Amit Chandra

Mr. Prashant Trivedi

Mr. Dereck Joubert

Dr. Thomas Kaplan

Mr. Alok Kshirsagar

Mr. Anshu Jain

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Cover Photo: Malabar giant squirrel (*Ratufa indica*) © Dr. Anish Andheria

OUR BACKBONE

Departments

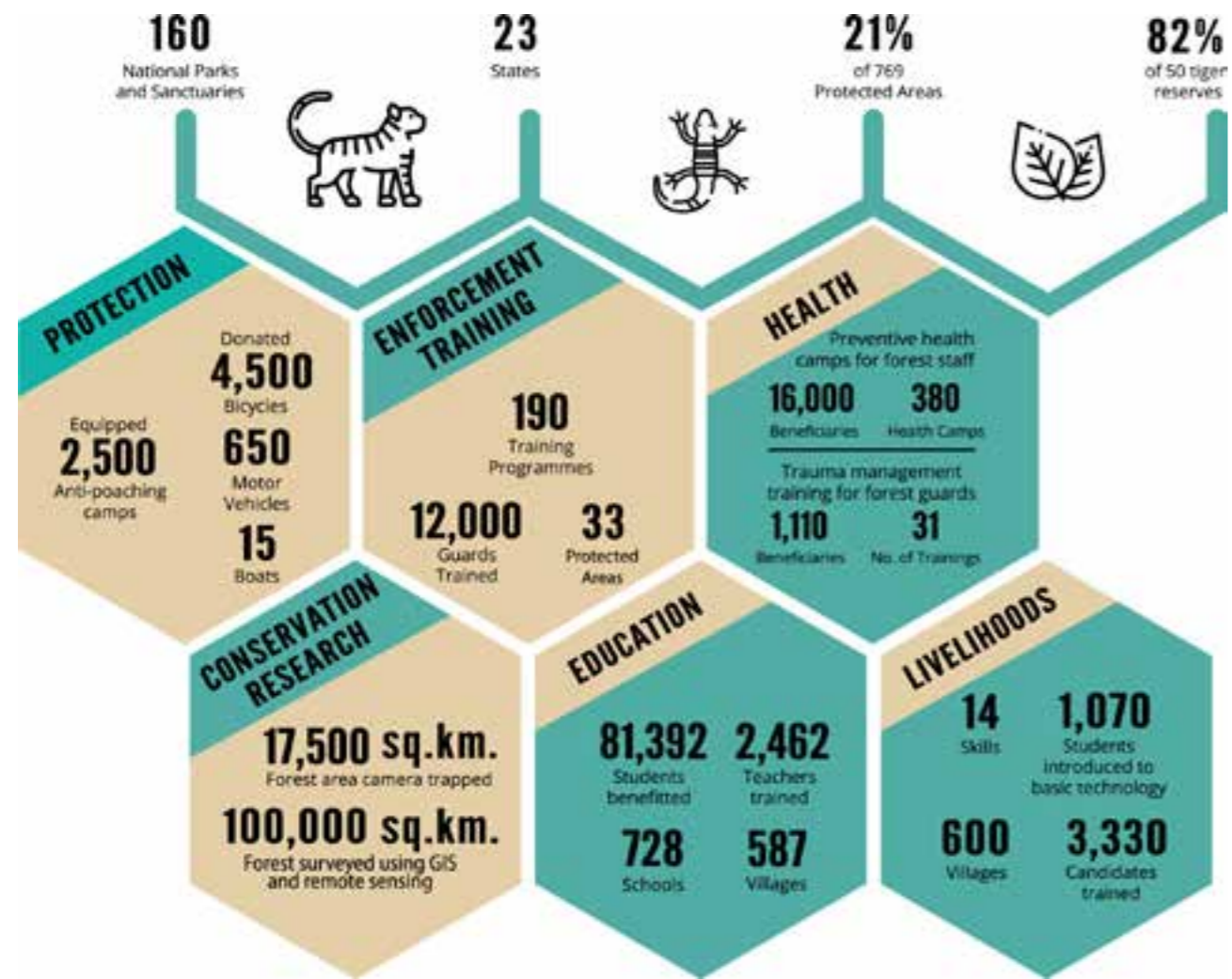


HWIM - Human-Wildlife Interface Management • CAWIP - Canine-Assisted Wildlife Investigation Programme

Donors



OUR REACH



Updated figures as of March 2019

Abbreviations and Acronyms

CIL - Central Indian Landscape

CRC - Cluster Resource Centre

GTL - Greater Tadoba Landscape

GPS - Global Positioning System

GIS - Geographic Information System

HWI - Human-Wildlife Interface

NH - National Highway

NP - National Park

NTCA - National Tiger Conservation Authority

PAs - Protected Areas

TR - Tiger Reserve

WII - Wildlife Institute of India

WLS - Wildlife Sanctuary

KEY ACTIVITIES

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April 9th-11th

WCT donated over 20 different pieces of field equipment and essential items including GPS, digital camera, all-weather tent, metal cot, cupboard, sleeping bag, winter jacket, etc., to the forest staff in 26 Protected Areas in Kashmir. WCT President, Dr. Anish Andheria was invited to Srinagar to address the frontline forest staff and participate in a ceremony to distribute the equipment and essential items to the field staff that were donated by WCT.

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April 17th

Dr. Anish Andheria addressed a batch of 30 Chief Minister's Rural Development Fellows (CMRDF) as part of the Maharashtra Village Social Transformation Programme (VSTP). The interrelationship between the health of the forest and that of the communities was the focus of the discussion. He also addressed a separate session on mitigating human-wildlife conflict in these villages.

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May 5th-6th

Dr. Anish Andheria was part of the two-day Cryptocurrency Workshop in Bangkok. NGOs from over 15 countries participated in the workshop.

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May 10th

Dr. Anish Andheria who is also a member of the Executive Committee of the State Board of Wildlife attended a survey meeting on the Multimodal Highway cutting across the corridor between the Sanjay Gandhi National Park and the Tungareshwar Wildlife Sanctuary as part of the sub-committee constituted by the Chief Minister of Maharashtra.

May 11th-14th

Dr. Anish Andheria delivered a talk to the participants of the Conservation Lab on 'Conservation learnings from India that Africa can benefit from', in Cape Town.

September 14th

Dr. Vishal Gadre presented the findings from its health programmes at the international One Health conference, held in London and organised by the Tulsi Foundation, UK, where he represented WCT. A wide range of topics were discussed including conservation challenges, perceptions and working conditions of field rangers, integration of health and conservation, empowering local communities, lessons in psychological function for rangers.

September 27th-30th

WCT Biologist, Milind Pariwakam, addressed the 'Students Conference in Conservation Science-2018' in Bengaluru, and shared his experiences in the field as a conservation scientist.

October 8th-12th

Dr. Chetan Trivedy, Chief Medical Officer, WCT presented the photo-story 'Voices from the Field: A Health Needs Assessment Analysis of Frontline Staff Working in Tiger Reserves Across Central India', jointly developed by WCT and Tulsi Foundation, UK. This was displayed in the 'Photovoice Exhibit' at the fifth Global Symposium on Health Systems Research (HSR 2018) held in Liverpool, UK.

October 11th

At the Club of Rome's conference, Dr. Anish Andheria delivered a special address on 'Reshaping the Economy to Accelerate Jobs'. He also moderated a plenary session that discussed the challenges and solutions faced by India as it embarks upon a rapid growth cycle.

October 15th

Dr. Anish Andheria attended the strategy building meeting of the executive committee comprising several business houses and renowned foundations, of the 'India Climate Collaborative' (ICC) that aims at realising the potential of forested and agricultural landscapes to mitigate climate change, benefit people, and protect the environment.

November 1st-2nd

At the Eastern Himalayan Natureconomics Forum, hosted by Balipara Foundation in Guwahati, Dr. Anish Andheria was part of the panel on 'Rural Futures: The Meaning of Education' that aimed to explore the best ways to make conservation education through art widespread across schools.

November 10th-14th

At the Paris Peace Forum, Dr. Anish Andheria was part of the panel that discussed ways and means of "Saving Biodiversity from the Cliff". The Forum is held every year in Paris with the aim to place global governance at the top of the international agenda.

December 25th-28th

WCT hosted a field trip for senior staff of USAID at the Tadoba Andhari Tiger Reserve.



The Paris Peace Forum © Anish Andheria

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January 19th

Dr. Anish Andheria was invited to deliver a session for students on the theme 'Empower to Lead, Inspire to Act' at the Singapore International School Regional Round Square Conference 2019, held in Mumbai.

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January 28th-29th

WCT co-hosted the third Stocktaking Conference on Tiger Conservation of the Global Tiger Forum held in New Delhi. The aim of the event was to take stock of challenges and successes of 13 tiger range countries in conserving tigers. At this conference, Milind Pariwakam, Head, Road Ecology, presented 'Policy Level Solutions for Linear Infrastructure Development and Corridor Conservation at a Landscape Scale'.

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January 29th

Dr. Anish Andheria was part of the forum on 'Land Use, Sustainable Development and Climate Change in India', an India Climate Collaborative event hosted by the Tata Trusts at the World Trade Center, Mumbai.

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February 16th

Dr. Anish Andheria delivered a keynote address to first year L.L.B students at the NMIMS Kirit P. Mehta School of Law, Mumbai at their event #IndustryAcademiaSynergy2.0. The aim of the session was to sensitise these students towards wildlife conservation.

February 21st-22nd

Prasenjeet Navgire, Head, Law Enforcement Monitoring, represented WCT at the Species Survival Network (SSN), meeting held in New Delhi in preparation of the CITES (Convention on International Trade in Endangered Species of Fauna and Flora) conference (CoP 18).



Third Stocktaking Conference on Tiger Conservation © Anish Andheria

February 21st-23rd

Dr. Sandeep Deshmukh, Head, Education, presented a paper on Process Documentation of Educational Change in Forest Dominated Habitat in Nilgiris at the international conference organised by University of Pune and Indian National Confederation & Academy of Anthropologists.

March 8th

As member of the NTCA, Dr. Anish Andheria attended its preliminary meeting held in New Delhi. Mr. Hemendra Kothari, Chairman, WCT, is also on the NTCA board.

March 12th

Prasenjeet Navgire delivered a talk on 'Wildlife Protection as an Enforcement Strategy', focusing on wildlife crime prevention, at the Ashok Kumar Memorial Wildlife Law and Enforcement Conference, organised jointly by the Bharati Vidyapeeth Institute of Environmental Education and Research (BVIIEER), Wildlife Crime Control Bureau (WCCB), Stetson University and the University of Cologne, in Pune.

March 25th-26th

Aniket Bhatkhande, Economist, Conservation Behaviour Vertical, represented WCT at the Sustainable Urbanisation Planning Workshop held under the aegis of the EU-Mumbai Partnership in Mumbai. The event was attended by eminent personalities such as Henriette Faergemann, First Counsellor, EU.

March 28th-29th

Rushikesh Chavan, Head, Conservation Behaviour, represented WCT at the Ecole Intuit Lab design hackathon held in Mumbai. The hackathon was organised with the objective to ideate and present innovative fundraising solutions for NGOs.



Dr. Anish Andheria at the Eastern Himalayan Nature Economics Forum, hosted by Balipara Foundation

ANNUAL HIGHLIGHTS



Convergence Project - Village Social Transformation Programme

The work of this programme aligns with the above UNSDGs.

WCT has partnered with VSTF to provide technical inputs on 49 villages in the conservation-sensitive area of Bramhapuri Division of Chandrapur District in Maharashtra. WCT's role involves building capacity in the local community for co-management of forests, livelihood programmes and conservation-science based initiatives such as population estimation of wildlife and dissemination of information about animal movement to village communities. Teams from Conservation Research, Conservation Behaviour, Livelihood, and Education verticals are actively engaged in VSTP.

- Established a VSTP field station in Sindewahi.
- Completed baseline survey for 2,098 households across 49 villages. Completed preliminary report indicating economic parameters.

What is VSTF?

Maharashtra Village Social Transformation Foundation's (VSTF) mission is to transform least developed villages into model ones through a convergence of development efforts between the government, NGOs, and corporate partners, so as to create an inclusive growth model for self-sustainable development.

- Installed alert systems in 21 villages on pilot basis to reduce human-wildlife encounters.
- Conducted workshops for the CM fellows on introduction to the GTL, challenges with respect to wildlife and communities; and on Public Biodiversity Registers.
- Conducted rapid ethnographic assessment to understand water usage and heating practices in selected villages. Focus Group Discussions (FGDs) were held in 10 VSTF villages to understand ground realities associated with firewood consumption and human-wildlife conflict. The paper on 'Firewood demand' using economic and psychological parameters was drafted. Analysed economic and psychosocial data collected from the villages to understand firewood usage patterns and completed the qualitative analysis of the Greater Tadoba Landscape.
- **Data collected showed that usage of firewood for water heating is unaffected by current government programs. Recommendations to the government for achieving zero dependence on firewood are being prepared.**



Milestones



Presented our report on 'A Policy Framework for Connectivity Conservation and Smart Green Linear Infrastructure in the Central India and Eastern Ghats Landscape' to the Parliamentary Committee on Science and Technology, Forests and Environment.



Completed empirical paper titled 'Understanding the Impact of Forest Development Corporations on Labour: A Game Theoretic Approach'.



Completed the report on 'Equitable Use of Ecosystem Services'.



Submitted a white paper on the motivation of forest guards to the Maharashtra Government.



Signed a three-year MoU with the Maharashtra Forest Department to support monitoring of tigers outside Protected Areas.



Signed a three-year MoU with the Government of Maharashtra as a educational resource-agency for the buffer zones of Pench and Tadoba TRs.



Presented a proposal for Wildlife Forensic Laboratory in collaboration with Maharashtra Forest Department which was approved by the Maharashtra Government.



Conducted preventive health check-ups for 91 members of the Pench TR staff, Madhya Pradesh Forest Department and 341 members of the Sahyadri TR staff, Maharashtra Forest Department.



Trained 310 staff over 9 trauma management training sessions held across Pench-MP, Ranthambhore, Sariska, Kawal, Achanakmar TRs, and Ambikapur WLS.



Carried out livestock examination in 29 villages for Foot and Mouth Disease around Bandhavgarh Tiger Reserve.



Functionalised grain banks in two villages in Maharashtra.



Initiated production of a video series on Forest Guards in collaboration with Earthcare Productions.



Supported seven new projects approved under WCT-Small Grants programme.

14,00,000 km. of patrolling efforts recorded and analysed.

5,840 sq. km. camera trapped in CIL as part of the All India Tiger Estimation exercise.

27 mitigation structures along five state highways incorporated in the Tadoba Landscape upon WCT's suggestions.

7 new Cluster Resource Centres launched in Maharashtra.





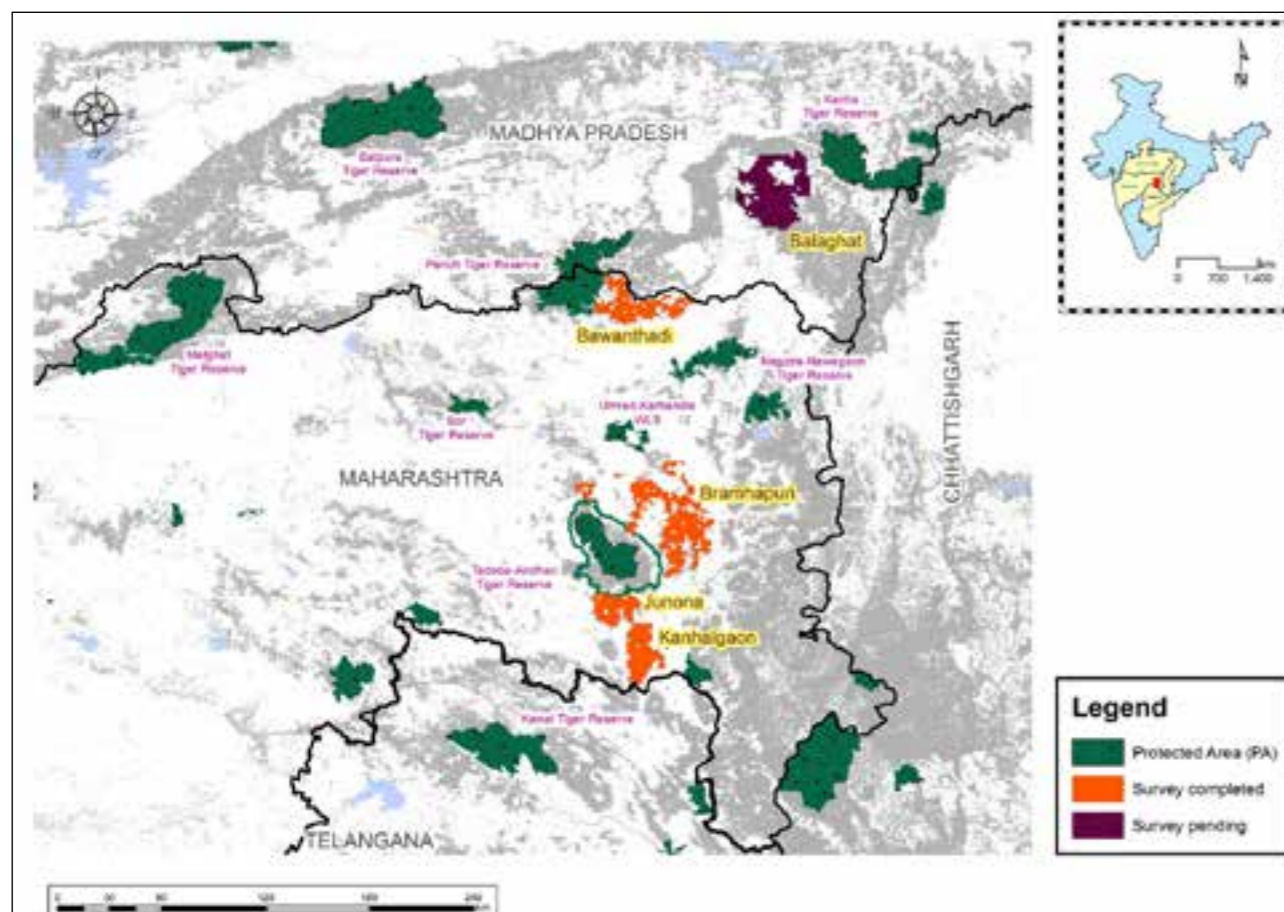
DEPARTMENTAL REPORTS

A. Conservation Research

WCT's Conservation Research division executes rigorous on-ground activities mainly in the Central Indian Landscape to generate scientifically sound data that helps forest officials and conservationists approach wildlife protection holistically. WCT's wildlife biologists use genetics to identify individual tigers and track their movement from their feces and undertake camera trapping to assist forest department to estimate the number of tigers and lesser known species both within and outside Protected Areas. WCT's intensive studies on genetics and landscape ecology have provided substantial evidence for the need to safeguard corridors and relatively small Protected Areas as well as forest patches outside these protected areas for the long-term survival of tigers and their prey. WCT has also initiated a hydrology project to develop data-sets on movement, flow and distribution of water.

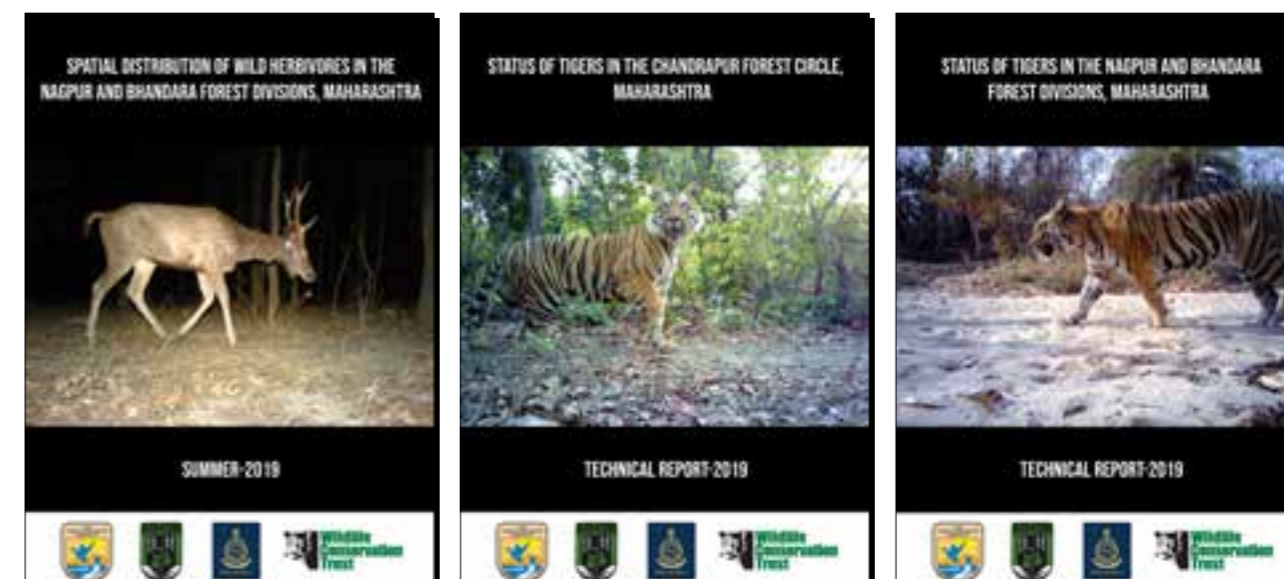
Large Carnivore Monitoring

- Extensive camera trapping exercises were implemented in the Central Indian Landscape (see map below). This included documenting 5,840 sq. km. area for the All India Tiger Estimation exercise. Camera trap data has been sorted, analysed and duly submitted to the authorities.



- Conducted camera trap-based sampling and scat-collection surveys for diet analysis in the Chandrapur Forest Circle.
- Provided technical inputs to the Maharashtra Forest Department to assist in capture of tigers in areas of conflict.

- Signed a three-year MoU with the Maharashtra Forest Department for monitoring of tigers outside PAs.
- Conducted training for the frontline forest staff of the Wadsa Division, Gadchiroli, Maharashtra, on camera trapping technique and tracks and signs survey.
- Produced and submitted technical reports on camera trapping surveys to the Maharashtra Forest Department.



Some of the technical reports submitted to the Maharashtra Forest Department © WCT

Hydrology

- Conceptualised, secured funding and obtained permission for a new project aimed at studying hydrological services provided by waters sources in Saptura TR.



Sachin Raut, Conservation Research team, setting up a camera trap © WCT

B. Conservation Behaviour

The work of this department aligns with the above UNSDGs.

WCT's Conservation Behaviour division undertakes in-depth studies that help chart evidence-driven interventions for community engagement to achieve conservation aims. Using multi-disciplinary framework, including economics, psychology, and sociology, the team evaluates and compares existing policies and practices, assesses their impact, and prepares white papers that suggest optimal measures grounded in contemporary public policy design models.

VSTP

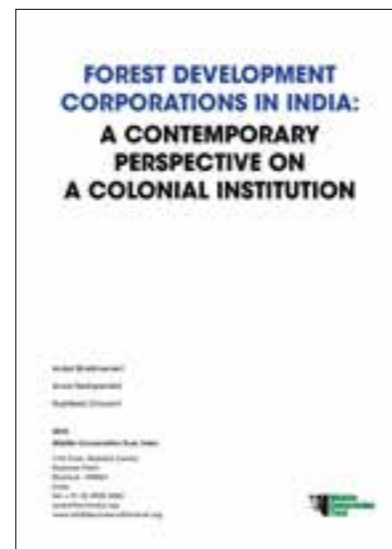
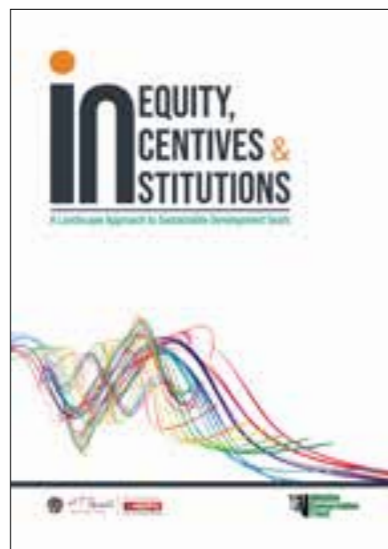
- Conducted a rapid ethnographic assessment to understand water usage and heating practices in three villages under the VSTP.

Forest Guards' Motivation Survey

- White paper titled, 'Finding Forest within Forest Guards: Implicit Connections with the Work Environment' for Maharashtra submitted.
- Completed the analysis of work-motivation data of Forest Guards from Madhya Pradesh TR. Based on this analysis, training for capacity building of mid-level forest staff for better management of Forest Guards is planned for the year 2019-20.

Reports and Papers

- Submitted a paper titled "Forest Development Corporations in India - A contemporary perspective on a Colonial Institution."
- Prepared a report on the socio-economic status of villages located in close proximity of Kanhargaoon with focus on understanding livelihood dependency of households on the Forest Development Corporation (FDC).
- Completed an empirical paper titled 'Understanding the Impact of Forest Development Corporations on Labour: A GameTheoretic Approach', which provides a critique of the FDCs from a labour market perspective. The paper models how FDCs, set up with the guiding principle that growth should lead to social justice, in effect led to entrapment of local labour into poverty instead of elevating them out of it.
- Prepared a tourism feasibility report that presents a model focusing on better governance that will not only help the local economy by helping communities break out of poverty, but also aid overall development.



Reports and white papers published by WCT's Conservation Behaviour team



Tamanna Ahmed, Conservation Behaviour team, with villagers during the rapid anthropogenic assessment © WCT

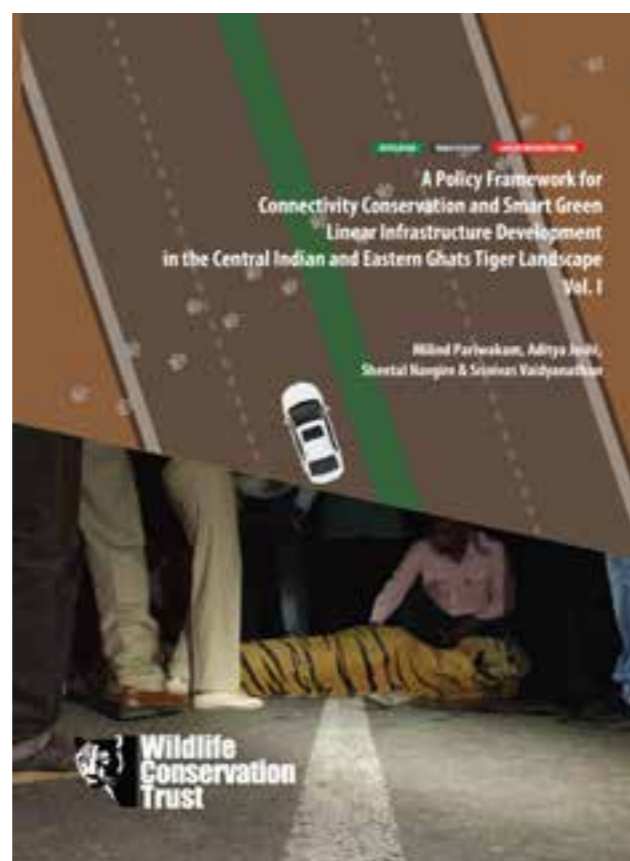


Local surveyors being trained by WCT's Conservation Behaviour team as part of VSTP © WCT

C. Road Ecology

Linear infrastructure projects, like roads and railways are among the largest man-made structures on the planet. Widening of roads, construction of new roads, enhancing railway network, building of new canals, etc. endanger the lives of several highly mobile animal species. Further, linear infrastructures, which pass by or cut through forests, sever vital wildlife corridors, thereby isolating animal populations and eventually, leading to local extinctions. WCT's Road Ecology division studies linear infrastructure projects and undertakes policy-level interventions for the creation of mitigation measures needed to prevent damage to wildlife from such projects.

- Gathered substantial geospatial roadkill data along linear infrastructures through WCT's Citizen Science initiative, **Roadkills.in**.
- Identified roadkill hotspots with high occurrence of road kills along NH 7 and Chandrapur-Mul road.
- Suggested mitigation measures along a proposed highway in the Vidarbha region which were incorporated into the Detailed Project Report compiled by Public Works Department.
- Submitted a research proposal on linear ecology in Melghat TR, following which the permit for field work has been granted.
- Published and shared with all stakeholders the first ever policy paper titled, '**A Policy Framework for Connectivity Conservation and Smart Green Linear Infrastructure Development in the Central Indian and Eastern Ghats Tiger Landscape**'.
- Prepared and submitted a report on linear infrastructure in the Tadoba Landscape to the NTCA and Maharashtra Forest Department. These included fine-scale solutions for developing the roads in Chandrapur arrived at by using camera trapping data. Suggestions made by WCT were accepted by the Maharashtra Forest Department and the PWD who have agreed to provide animal-friendly mitigation structures along five state highways.
- Hosted Tigers Forever 2018 Workshop jointly with Panthera at Pench TR, Madhya Pradesh. 35 tiger conservationists from various Tigers Forever sites around the world attended the workshop and visited the Pench TR and the mitigation structures along NH 7.



India's first functional underpass for wildlife on NH 7 (44) passing through the Kanha-Pench corridor © Milind Pariwakam/WCT



The elevated part of NH 7 (44) that houses the first functional underpass for wildlife © Milind Pariwakam/WCT

D. Human Wildlife Interface Management

WCT's Human-Wildlife Interface Management division trains forest staff in reducing collateral damage in conflict situations and assists forest departments in developing long-term mitigation measures. WCT has played a key role in the development of a Human-Tiger Interface Prediction Module, which uses spatial and temporal characteristics of previous interactions and allows the forest department to predict potentially sensitive situations in the future. WCT's veterinary doctors play a key role in tracking and monitoring carnivores that dwell close to human settlements and have been at the forefront of direct interventions, including tranquilising animals. WCT uses radio-telemetry to understand how dispersing tigers use their habitat. This helps the Government to plan and implement community interventions for mitigating conflict arising from the interaction between people and tigers. WCT assists state forest departments in radio-collaring tigers that have strayed into human habitation or are in the process of being rewilded, to facilitate their management.

Human-Carnivore Conflict Mitigation

- Continued providing technical assistance to the committee constituted to monitor human-tiger conflict in both Maharashtra and Madhya Pradesh.
- Assisted Forest Departments of Madhya Pradesh and Maharashtra in monitoring, collaring and rescuing tigers that strayed into or close to human habitation five times in six months.
- Imparted onsite training to the field staff of Nauradehi Wildlife Sanctuary on VHF tracking techniques.
- Assisted the Maharashtra Forest Department in the Pandarkawda human-tiger conflict case (see table below).

Activities/Milestones	Apr 2018	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019
WCT assisted in camera trapping operation to look for tigress T1 and cubs												
WCT President and five others included in the State-level expert committee to investigate the death of tigress T1								Nov 06				
State-level committee visits Pandarkawda to investigate the death of tigers T1								Nov 18-20				
WCT team led by Aditya Joshi carried out search operation to capture both cubs of tigress T1												
Committee report submitted to the state government									Dec 05			
Successful capture of the female cub									Dec 22			
Search operation to capture the male cub												

Disease Surveillance

- Established a field station in Vikatganj in Umaria to strengthen efforts towards the survey of livestock in the buffer areas of Bandhavgarh for Foot and Mouth Disease. Livestock examination in 29 villages (1,568 households) completed.
- Surveyed 315 households for livestock population in seven villages in the core of Bandhavgarh TR, Madhya Pradesh. Collected 1,840 serum samples from livestock of villages in and around Bandhavgarh TR for disease surveillance in two discrete surveys.

- Assisted Madhya Pradesh Animal Husbandry Department in organising an animal health camp for livestock in buffer zone villages around Bandhavgarh TR. A total of 40 animals were treated and medicines were distributed to 256 livestock owners.
- Conducted surveys to record the movement of livestock in the buffer of Bandhavgarh TR using livestock mounted GPS tags.

Mortality Investigation

- Assisted Madhya Pradesh Forest Department in post-mortem examinations of wild tiger, leopard, gaur, and elephant mortalities in Satpura TR, Bandhavgarh TR and Ratapani WLS.



Dr. Prashant Deshmukh, Head, HWIM, helped with the rescue of a tiger © North Betul Forest Division, Madhya Pradesh Forest Department



Dr. Himanshu Joshi, Veterinarian, HWIM department undertaking survey of livestock © WCT

E. Canine-Assisted Wildlife Investigation Programme (CAWIP)

- Acquired four working dogs specially trained to carry out varied tasks related to wildlife crime investigation. Two of these dogs are Belgian Malinois - a versatile breed of dogs that can be trained for various tasks related to scent detection. The other two are Weimaraners - a German-origin breed of hunting dogs.
- Readied all four dogs for field deployment. Discussions are underway with Forest Departments regarding their optimal use.

CAWIP is a recent addition to WCT. The main objective of this vertical is to assist in human-wildlife interface management, conservation research, camera trapping, road ecology and mitigation measures, disease surveillance and wildlife law enforcement.



The four specially trained dogs, of Belgian Malinois (left) and Weimaraner (right) breeds, acquired under WCT's CAWIP © WCT



One of WCT's two Belgian Malinois undergoing field training © WCT

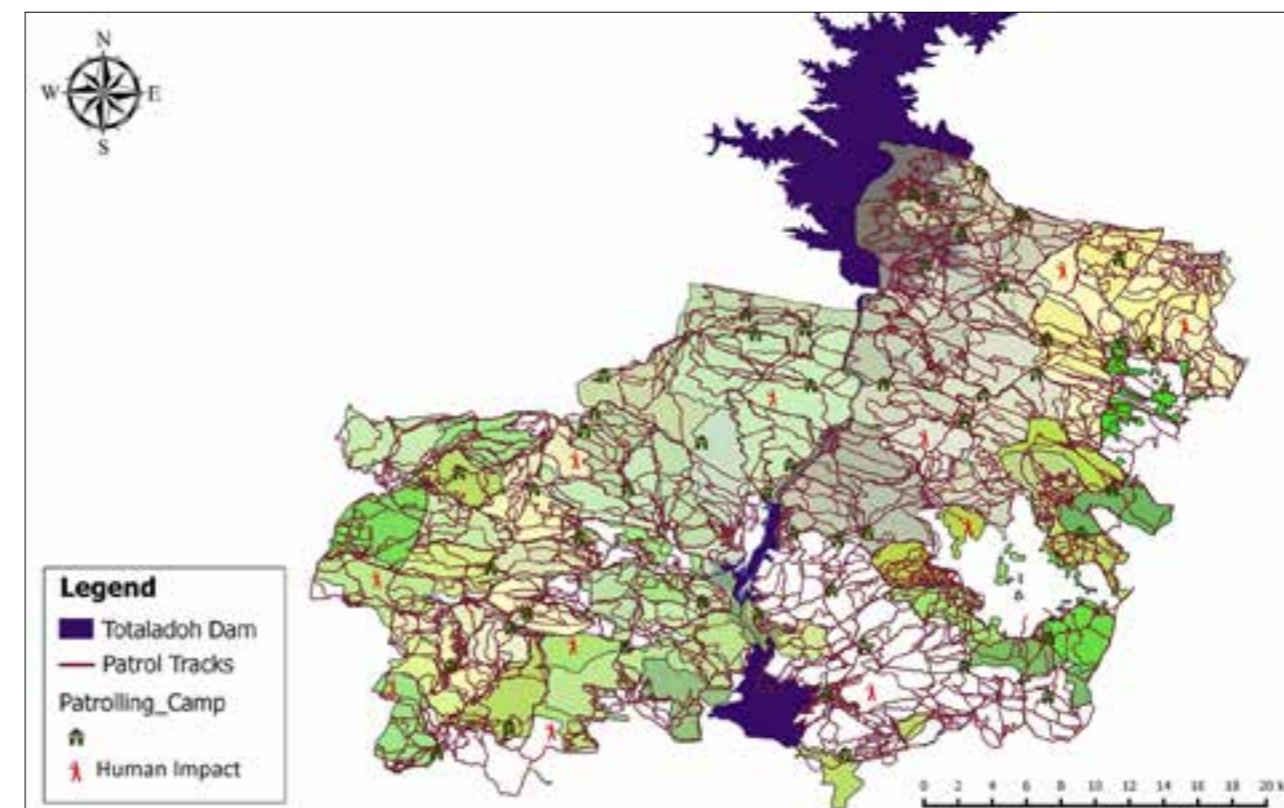


WCT team along with a forest officer engaged in dog training exercises © WCT

F. Law Enforcement Monitoring

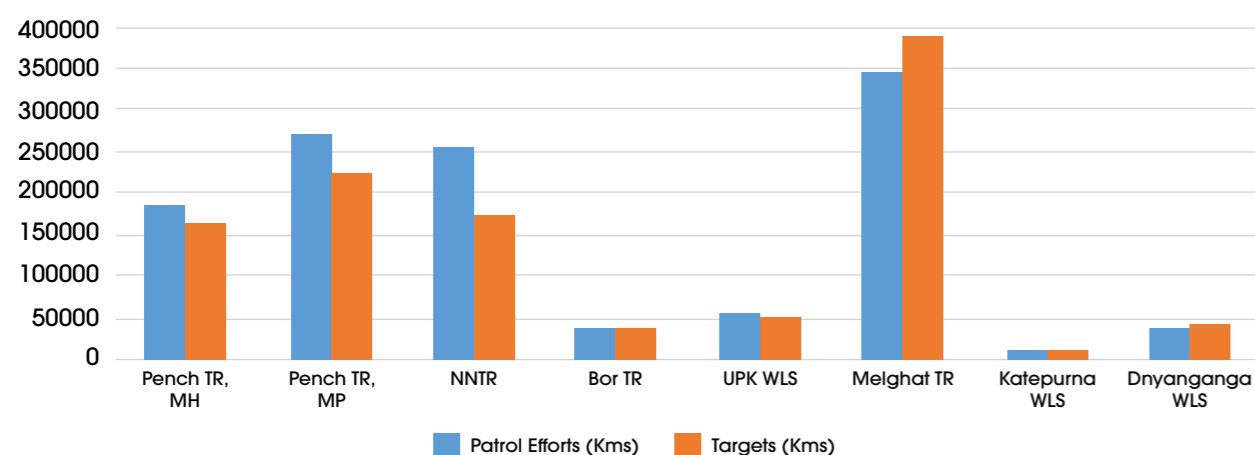
WCT's Law Enforcement Monitoring division has established itself as an authority in the usage of the MSTRIPES (Monitoring System for Tigers - Intensive Protection and Ecological Status) software. This tool helps maintain a database of patrolling efforts, illegal activities and ecological attributes in the tiger reserve where it is implemented. Besides ensuring effective patrolling, WCT also plays an important role by training forest staff in the implementation of MSTRIPES. The detailed information generated through MSTRIPES on a weekly basis assists Field Directors take effective management decisions.

- Continued monitoring and evaluation of the implementation of MSTRIPES in nine sites, i.e. Pench TR, Madhya Pradesh and Maharashtra, Bor TR, Umred-Pauni-Karhandla WLS, Nawegaon Nagzira TR, Melghat TR, Katepurna WLS, Dnyanganga WLS and Satpura TR, MP, covering an area of 8,081 sq. km.
- MSTRIPES data analysed by WCT shows that **12,59,139 km. of foot patrolling** was recorded by the frontline staff, achieving 114% of the foot patrol targets during the reporting period. Nawegaon Nagzira TR, Maharashtra, topped with 161%, followed by Pench TR, MP, at 160% of the assigned targets being achieved.
- Conducted 19 refresher trainings for beat guards, round officers and RFOs of Pench TR, Maharashtra, Umred-Pauni-Karhandla WLS, Bor TR, Melghat TR and Nawegaon Nagzira TR. Over 520 frontline staff from Maharashtra and 10 Data operators from Pench TR, MP benefitted from the training. Refresher trainings for all the daily wagers at Pench TR, Maharashtra, were conducted.
- Conducted training on MSTRIPES implementation for the entire staff of Satpura TR.
- Initiated transitioning of data-analysis and related processes for MSTRIPES in Pench TR to the respective Forest Departments in Maharashtra and Madhya Pradesh, towards the end of the financial year, 2018-19.
- Provided feedback to WII and NTCA on the new version of MSTRIPES application based on practices in Satpura TR and Pench TR, MP in the form of a report as well as through discussions.



A representative map showing the patrol routes covered in two weeks in Pench Tiger Reserve, Maharashtra © WCT

MSTRIPES Patrol Efforts 2018-19



MSTRIPES data analysed by WCT shows the foot patrol targets met by frontline staff in their respective Protected Areas © WCT



WCT conducted MSTRIPES refresher training session for forest staff in the Pench Tiger Reserve, Maharashtra © WCT

G. Wildlife Law Enforcement Training

India has poor wildlife crime conviction rates despite having some of the most robust protection laws. Improper implementation of laws, lack of legal know-how, and insufficient legal case documentation all contribute to low conviction rates. In order to address these lacunae, WCT's Wildlife Law Enforcement Training team conducts focused capacity building workshops for frontline forest staff.

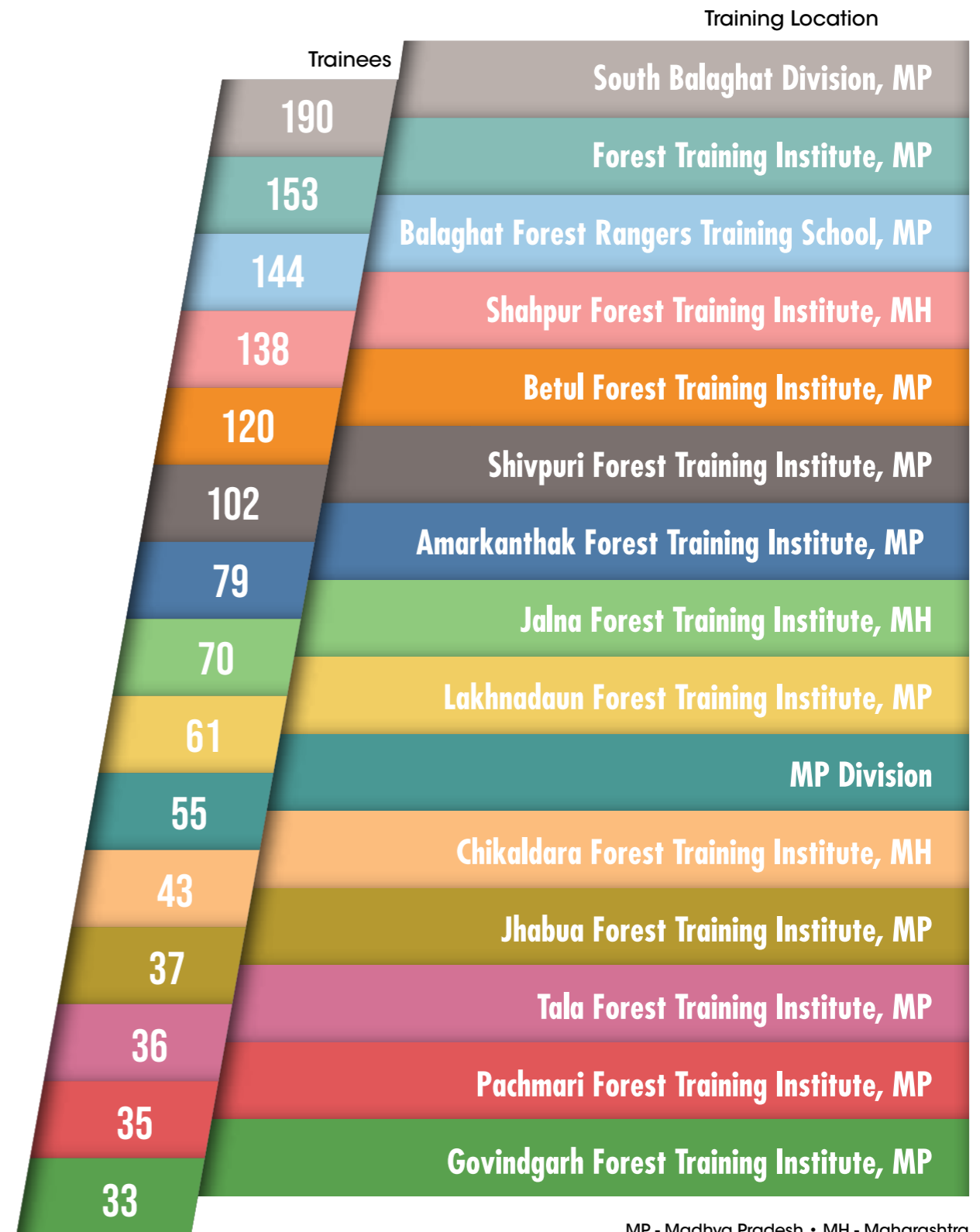


Sanjay Thakur, Senior trainer, WLET with the newly trained recruits at Betul Forest Training School, Madhya Pradesh © WCT



Kiran Rahalkar, Head, WLET with the newly trained recruits at Jalna Forest Training School, Maharashtra © WCT

Continuing with our commitment to strengthen protection mechanisms in Protected Areas, Wildlife Law Enforcement Trainings were conducted for new recruits to the Forest Departments of Maharashtra and Madhya Pradesh.



MP - Madhya Pradesh • MH - Maharashtra

H. Wildlife Forensics

The work of this department aligns with the above UNSDGs.

The Wildlife Forensics division is a new addition to WCT. The main objective of this vertical is to address the current lacunae in utilisation of crime scene evidence that affect the stringent enforcement of wildlife crime in India. The division aims to achieve this by building capacity and driving an evidence-based policing system among all the key stakeholders - scientists, judiciary, and enforcement agencies.

Capacity building

- Supported the Maharashtra Forest Department in submitting a proposal for the creation of a dedicated Wildlife Forensic Laboratory at the Sanjay Gandhi National Park. The proposal has been approved by the Maharashtra Government and funds for it have been sanctioned.
- Represented WCT at the 24th All India Forensic Science Conference organised by the Directorate of Forensic Science Services, MHA, GOI, and Raksha Shakti University at Ahmadabad from February 10-12, 2018.
- Represented WCT at the 'Brain Storming session on Wildlife Forensics and Health', organised by and held at the School for Wildlife Forensics and Health, NDVSU, Jabalpur, from February 27-28, 2018.



C. Samyukta, Head, Forensics, at the seminar on marine forensics hosted by AIWC

Training sessions

- Conducted a sensitisation workshop on 'Forest Act and Wildlife Protection Act' and 'Forensic Evidence in Wildlife Cases' for 36 CJJD (Civil Judge Junior Division) and JMFCs (Judicial Magistrates of the First Class) undergoing refresher training at the Maharashtra Judicial Academy, Uttan.
- Delivered a session on marine forensics at the seminar titled 'Forensic Approach to Investigating Wildlife Crime' organised by and at the Advanced Institute for Wildlife Conservation (AIWC), Chennai in collaboration with TRAFFIC, India from 26-28 September, 2018. It was attended by officers of the Tamil Nadu Forest Department and other enforcement agencies, including DRI and Customs.



A Wildlife Forensic Laboratory proposal was submitted by the Maharashtra Forest Department with WCT's support © WCT



WCT conducted training on wildlife forensics for JMFCs at the Maharashtra Judicial Academy, Uttan © WCT

I. Health

Lack of access to affordable quality healthcare for frontline forest staff, coupled with the remoteness of their work place, is an area of grave concern. WCT's Health division, in collaboration with The Tulsi Foundation, has designed the 'Caring for Conservators' programme and Trauma Management Training to extend expert clinical healthcare to frontline forest staff. This collaborative effort has also led to the development of the first-of-its-kind 'First Aid Field Guide for Forest Staff' that can potentially save lives in remote forest locations. WCT works with state health departments to develop sustainable strategies aimed to improve access to primary health care facilities for forest staff working in Protected Areas. WCT's employees are also trained in trauma management and psychological health.

Trauma Management Training

- Conducted nine trauma management training sessions at Pench-MP, Ranthambhore, Sariska, Kawal, Achanakmar TRs, and Ambikapur WLS to train 310 frontline forest staff.
- Distributed the 'Field First-Aid Guide' to all the above trainees. This has been co-developed by WCT and Tulsi Foundation.
- Conducted training for WCT staff at Chandrapur, Khawasa, and Mumbai; as well as for VSTP Fellows working in buffer villages of Tadoba-Andhari TR.
- The largest 'Health Needs Assessment' survey in the world specific to forest staff is underway.



Dr. Trivedy and Dr. Gadre, Health department, performing a safe extrication simulation exercise for the VSTP Fellows © WCT

Caring for Conservators

- Conducted preventive health check-up for non-communicable diseases (NCDs) for the forest staff of Sahyadri TR was. A follow-up telephonic survey was carried out.
- Conducted preventive health check-ups focusing on NCDs and cardio-vascular disease risks for 91 members of the forest staff at Karmajhiri, Pench TR, Madhya Pradesh. They also received preventive oral health check-up.
- There were 120,000 new cases of mouth cancer in India in 2018. The dental checks for forest guards that were carried out are important since there is limited access to dental care in rural areas. Our findings showed that 17.2% had a pre-cancerous condition in their mouths that was linked to the chewing of tobacco and/or areca (supari) related products.

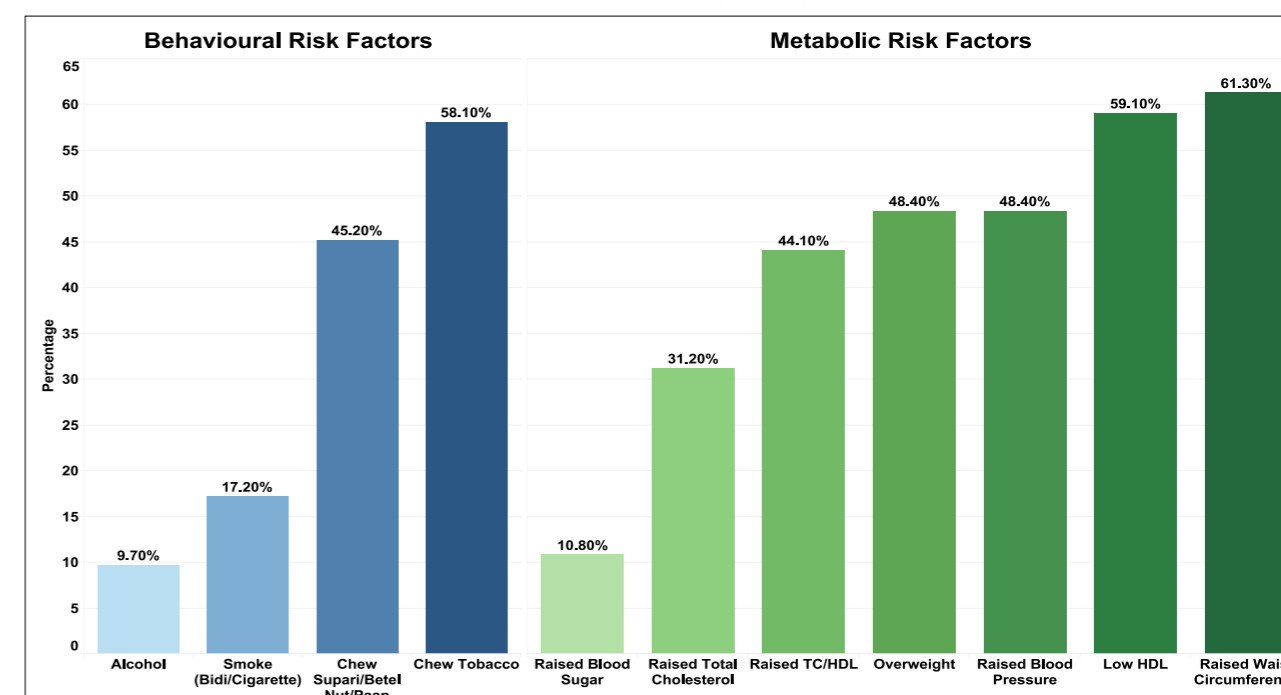


Figure 1: NCD risk factors identified among forest staff at Pench Tiger Reserve, Madhya Pradesh

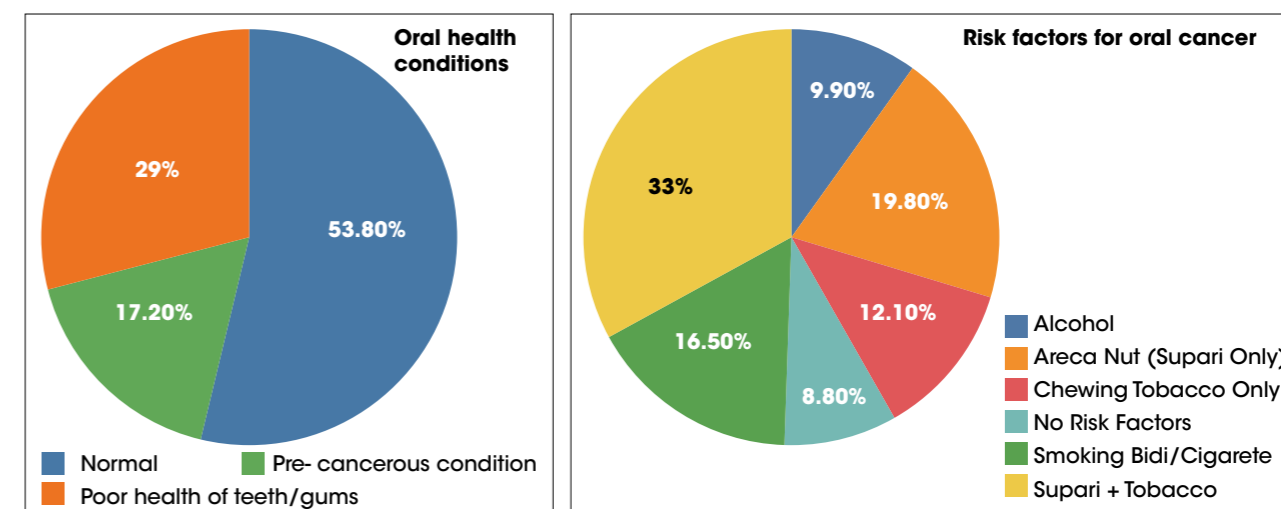


Figure 2: Oral health check findings for forest staff at Pench Tiger Reserve, Madhya Pradesh

J. Livelihoods

The work of this department aligns with the above UNSDGs.

Uncontrolled extraction of forest produce (i.e. forest-sourced food, fodder, agriculture and firewood) by communities dwelling in and around forests has contributed to severe degradation of over 40% of India's forests. WCT's Livelihoods division engages with such communities to align them to conservation goals and reduce their dependence on forests through the introduction of sustainable livelihood practices. WCT's interventions have engaged rural youth from remote forest villages and equip them with employable skills. WCT also educates rural farming communities on alternate land-use practices in order to enhance their agricultural yield and enrich soil quality. WCT has also incubated grain banks by contributing the initial required grain and transitioning their management to village committees.

VSTP

- Engaged with villagers through the Chief Minister's Rural Development Fellows (CMRDFs) in the transformation process for biodiversity conservation.
- Organised an exposure visit for farmers from the nine Gram Panchayats, where CMRDFs are posted to Banpuri village in Ramtek, Nagpur, Maharashtra.
- Organised an exposure visit for farmers from Govindpur village to Nimbala village in Chandrapur Block, Maharashtra for cross-learning in sericulture.
- Supported two CMRDFs in initiating production of vermicompost in their respective villages.

Community-based Alternative Land Use Systems

- Constructed overhead water tank and pipeline for the provision of safe drinking water in Doni Village.
- Organised a visit to Uthalpeth village, Maharashtra, for members of the Grain Bank Programme from Doni village to study group farming and collective irrigation, as a part of alternative cropping practices.
- Installed a solar based de-fluoridation unit for the provision of safe drinking water in Phulzari village.

Community Grain Bank Programme

- In the month of May 2018, 40 tons of paddy grain were distributed to 32 members from Nimbala and 34 members from Doni village, Maharashtra, respectively. In January 2019, each village has collectively returned 50 tons of paddy grains, an increase of 25% over initially distributed grains.



Livelihoods team attending a village organisation meeting in Kajalsar Village, Maharashtra © WCT



Bharat Kurhade, Livelihoods team, conducting an exposure visit for female farmers from Doni village to Uthalpet village © WCT

K. Education

The work of this department aligns with the above UNSDGs.

Education in early years focused on interventions at the school-level. We have now transitioned into providing community-based resource support through Cluster Resource Centres (CRCs). With WCT's inputs, CRC-based focus on education is evolving into a role model for rural education interventions. WCT has been the catalyst in developing and showcasing this methodology as the most effective way of translating and elevating school-based grass-root level interventions. This has translated and led to the development of model education centres that focus on training and capacity building of teaching staff, facilitating non-formal education and setting up STEM (Science, Technology, Engineering and Math) laboratories for wide sections of communities.



Teacher training sessions conducted in STEM, Environmental studies and English © WCT

- Revamped and launched three CRCs in the Greater Pench Landscape in Dhawlapur, Pauni and Devalapar. Also, operationalised four new CRCs in buffer zones of Tadoba Andhari TR. These centres cater to **more than 150 schools** and **over 4,500 new children** have benefitted from these centres.
- Signed a MoU with the Government of Maharashtra for three years as a resource-agency for the Development Blocks abutting Pench and Tadoba Andhari TRs.
- Trained over 560 teachers from schools in Pench TR - Madhya Pradesh, Pench TR - Maharashtra, and Tadoba Andhari TR in English, Science, Mathematics, Environment Education and Engineering.
- Organised an education fair, based on the theme of 'Energy Resources and their Conservation', to bring primary stakeholders together; and to promote science education among students and teachers. More than 800 children, teachers, and government officials participated in the fair.
- Conducted 16 teacher training sessions in STEM, Environmental Studies and English in Madhya Pradesh and Maharashtra impacting 334 schools.
- Conducted three microplanning workshops for teachers and teacher-supervisors.
- **Recorded 50-75% improvement in student-competencies** in science and mathematics in a sample of 27 upper primary schools.



WCT's Education Team with officials during Education Fair held in Khawasa, Madhya Pradesh © WCT



Ajinkya Ukey, WCT's CRC Lead, explaining human brain parts and its function to students © WCT

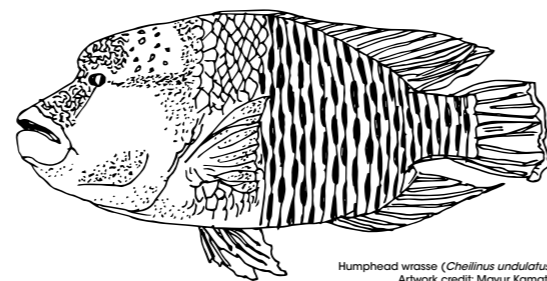
L. Small Grants

The WCT - Small Grants programme provides an opportunity to budding and practicing conservationists to pursue their passion of conserving endangered species and their habitats. Through this effort, WCT hopes to draw attention to the lesser-known species that need as much, if not more attention as the tiger, elephant and rhinoceros.

The four shortlisted projects and their subject of research:

First Phase 2018-19

- The viability of medicinal plants as alternative crops in buffer areas.
- Assessment of landscape for possible notification as a reserve forest to protect the giant grizzled squirrel.
- Evaluation of the population of the hump headed wrasse in the Gulf of Mannar.
- Using technology to conserve elephants in Assam.



Second Phase 2018-19

- Social Fencing Urban Protected Areas: Model Planning for Eco-Sensitive Zone (ESZ) for Bannerghatta National Park in Bengaluru.
- Assessing Diet of Himalayan Brown Bear (*Ursus Arctos Isabellinus*) in Relation to Bear- Human Conflict in the Kazinag National Park, Kashmir Himalaya, India.
- Participatory Assessment of Coastal Plateaus in Ratnagiri District to Designate "Biodiversity Heritage Sites" as per Biodiversity Act, 2002.

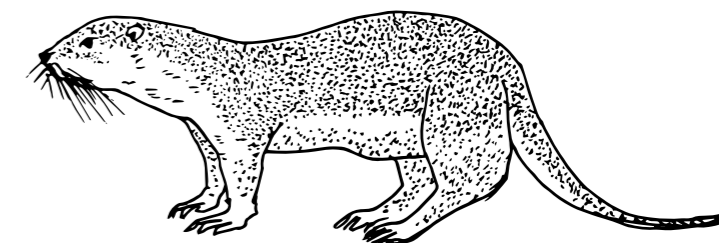


Coastal plateau in Ratnagiri © Ninad Bhosale/WCT

Research completed

a) Some of the WCT Small Grants researchers selected in the first phase (2017-18) completed and submitted their studies on:

- King cobras of the Western Himalayas: Nest ecology & conservation.
- Conservation status survey of smooth-coated otters in the Krishna river delta of Andhra Pradesh.
- Assessing patterns of livestock loss due to wolves in an arid human use landscape of north Karnataka, India.
- Evaluating the efficacy of human-elephant conflict mitigation strategies in reducing negative interactions in a biodiversity hotspot.



Smooth-coated otter (*Lutrogale perspicillata*) Artwork credit: Mayur Kamath

b) A few researchers from the first phase (2018-19) of WCT - Small Grants completed and submitted their analysis on the following topics:












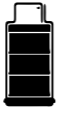




- Using technology to conserve elephants in Assam.
- The viability of medicinal plants as alternative crops in buffer areas.
- Assessment of landscape for possible notification as a reserve forest to protect the giant grizzled squirrel.


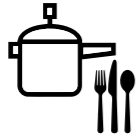

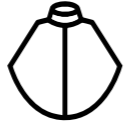













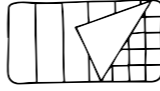





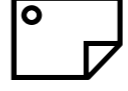








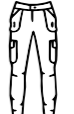
King cobra (*Ophiophagus hannah*) © Jignasu Dolia







M. Donations to Forest Departments





WCT strongly believes that better equipped forest staff is motivated to carry out their duties and is better able to monitor their landscapes and mitigate human-animal conflict. Through direct support in the form of essential goods and equipment, WCT aims to strengthen protection mechanisms and morale of the forest staff.

Balaghat Division, MP		Pune Wildlife Division		Melghat TR		Kashmir Wildlife Region	
 Gumboots	 Water bottles	 Thermal jackets	 Mahindra Tractor	 Tents	 Flasks	 Fire-retardant dress	 Shoes
 Thermal jackets		 Rain suits	 Hydraulic trailer	 Tiffin boxes	 Motor bikes		
		 Raincoats	 4000 litre tanker		 Snow goggles		

Shergaon Forest Division			Manas NP		
 Beds	 Utensils	 Cupboards	 Ponchos	 Gumboots	 Boonie style hats
 Mattresses	 Furniture	 Backpacks	 Rain pants	 Rain coats	 Day packs
 Blankets	 Water filter				 Waist pouches

Satpura TR					
 Sleeping bags	 Rain suits	 Water bottles	 Gumboots	 Carabiners	 Thermal jackets
 Tarpaulin	 Backpacks	 50 in-line water filter	 Shoes	 Cotton ropes with pulleys	 Tents
	 Groundsheets	 Tiger cage	 Gloves	 Trekking pants	

Ranthambhore TR	Bhadravati Division, Karnataka	Bhingad WLS, Karnataka	BRT TR, Karnataka	Cavery WLS
 Rain suits	 Thermal jackets	 Uniforms	 Bolero Camper	 Uniforms
			 Mahindra Thar CRDe	

Mudumalai TR, Karnataka			
 Backpacks	 Cupboards	 Water bottles	 Bolero Camper



Forest staff at Bandipur Tiger Reserve with the vehicle donated by WCT © Anish Andheria

N. Communications

WCT's Communications team uses engaging, thought-provoking stories, both in visual and written formats, to educate the greater public about the state of India's wildlife and the issues that plague them. Through focused campaigns, WCT engages a large cross-section of people and delivers to them data-rich content on relevant and pressing wildlife matters.

Social media reach

- Reached 46,000 people through a week-long campaign held during the Wildlife Week (02 - 08 October, 2018) which focused on big cats in India and the major threats to their existence.
- Revamped our website.
- Posted a total of 179 posts across Facebook, Twitter, Instagram and LinkedIn; reached 3,88,572 people, and engaged 19,066 people (through likes/shares/comments/clicks) through the period of April to September 2018.



Videography and filmmaking

- Produced a short film on the impact of solar panning to provide continuous electricity to schools and hostels in the buffer region of Kanha TR.
- Produced a short film series on habitat fragmentation in Central Indian forests due to intrusive linear infrastructure, highlighting the importance of including mitigation measures to protect wildlife as part of WCT's workshop on 'Capacity Building in Designing Mitigation Measures along Linear Infrastructure Projects', held in Nagpur in February 2017.
- Produced a short film showcasing the work done by the WCT camera trapping team.
- Collaborated in the production of a film series 'Heroes Of The Wild Frontiers' on forest guards of India with Earthcare Productions and other NGOs in the conservation space.
- Produced part one of a two-part animation video for promoting the Roadkills app.



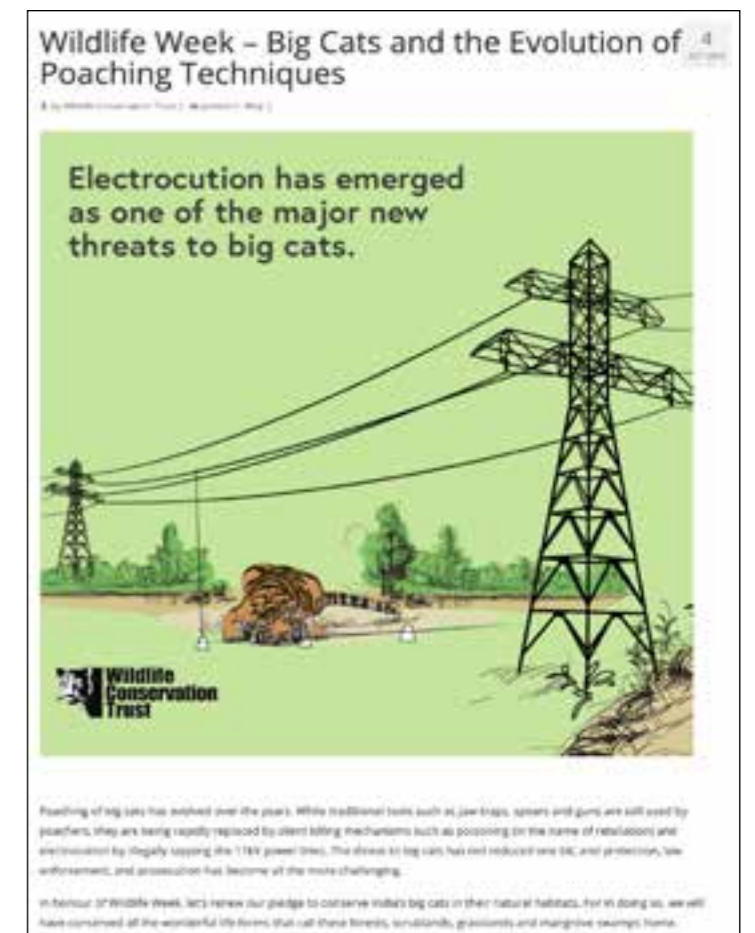
From left to right: Jay Mazoomdar, Indian Express; Krishnendu Bose, Filmmaker; Mary Melnyk, Environmental Security and Resilience Team Leader, USAID - Asia Bureau; and Dr. Anish Andheria, President, WCT at the Tiger Matters documentary screening held in Delhi © WCT

Press outreach

- Held a press event for the launch of the 'Tiger Matters' documentary in Delhi.

Feature articles and blogs

- Published ten long-form feature articles about various WCT projects in Sanctuary Asia, including:
 - ♦ Roads to Nowhere
 - ♦ Tightening the Noose on Wildlife Crime
 - ♦ Protecting our Protectors
 - ♦ Trapping to Protect
 - ♦ Tiger Connectivity
 - ♦ Otters in Tiger Country
- Published 15 blogs on our website.



Sanctuary | Photo Feature More at www.sanctuaryasia.com | Photo Feature



WCT'S CAMERA TRAPPING OUTSIDE PROTECTED AREAS

By Dr. Anish Andheria

Sanctuary Asia, April 2018 Sanctuary Asia, April 2018 71

Showcased here is an infinitesimally small selection from an ever-growing repository of nearly 30,00,000 camera trap images that has been built over five years of systematic and intensive monitoring of forests outside the protected area network of central India. The exercise has been carried out by the field team of Wildlife Conservation Trust in collaboration with the State Forest Departments of Maharashtra and Madhya Pradesh. While doing so, the team has spent countless hours scaling some of the most arduous terrains and braving temperatures ranging from 21 to 45 degree Celsius. Yet, according to them, nothing is more pleasurable than participating in work that helps the States to get a first-hand, granular understanding of the distribution of large carnivores, their prey, several other lesser-known, timid species, and also of anthropogenic disturbances.



ABOVE Hunters of the night: The most gratifying phase of camera trapping is when the field team begins downloading images, when 'non-target' species start emerging. This captured image of a ground-dwelling jungle cat and an aerial insectivorous but in one frame resulted in an excited exchange of mails between WCT team members.


FACING PAGE The eye of the leopard: Probably a courting pair. Leopards are by far the most adaptable of all large carnivores, which is why they do well both in pristine and multiple-use areas such as buffer zones of tiger reserves and corridors. Our work has shown that tiger leopard ratios range between 22 to 33 outside national parks and sanctuaries. Contrary to popular belief, leopards also coexist alongside relatively large human populations with little or no conflict.

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OTTERS IN TIGER COUNTRY

The Wildlife Conservation Trust's discovery of Eurasian otters in central India underlines the importance of conserving large landscapes in the name of umbrella species.

By Rizwan Mithawala



The business of biogeography is to inquire and ascertain where a species exists, where it doesn't, and why? Though enough work has been done to record and report the geographic distribution of species in India, our forests still hold secrets. That the forested hill ranges of Satpura, in the heart of India, is a biodiversity hotspot, is undisputed. But to say that all life forms, or even the mammals in these forests, have been fully documented and catalogued, would be a gross overstatement.

The Satpura hill-forests are home to mammals that glide across treetops – squirrels, and mammals that swim their rivers, otters. While the smooth-coated otter, found throughout south and Southeast Asia, has been well documented in Satpura, the other two species known from India – the Asian small-clawed and the Eurasian – had never been reported from central India. Moreover, there was no photographic evidence of the presence of the Eurasian otter in India until October 2016.

"Ek choti si aag si udhakar dikhti hai kabhi kabhi", a forest guard revealed to researchers from the Wildlife Conservation Trust (WCT) who were installing camera traps as part of the yearly tiger estimation exercise in the Satpura Tiger Reserve in December 2015. While installing camera traps, they had come across signs of other presence along the rivers and streams – footprints and spraints (otter dung). This got the researchers curious, and the guard's revelation, though not clear-cut, piqued their curiosity further. Unable to ascertain the species based only on the footprints and spraints, they decided to place camera traps for otters in a different ball game. For scientific estimation of tiger numbers, camera traps are never placed along streams; for otters, this is exactly what was needed to be done.

FACING PAGE The new photographic evidence of Eurasian otters from the Satpura Tiger Reserve and Balaghat Forest Division extends the species' known geographical range to the central Indian landscape.

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MSTrIPES A PROTECTIVE WEB FOR INDIA'S TIGER FORESTS

By Rizwan Mithawala

Webbs made by spiders trap unwary insects, bringing an end to their life. Such predation is essential for the functioning of the food web and sustenance of natural ecosystems. But we humans now pose an existential threat to such well-functioning self-repairing ecosystems.

Many fragile Indian forests sustain, and are sustained, by one of the most charismatic of all mammals on earth, the tiger. How wonderful it would be to provide such forests a protective web, one as strong as spider silk!

At the Wildlife Conservation Trust (WCT)'s field station in Madhya Pradesh, one such protective web is being cast on the deciduous forests of central India. The web here is of GPS tracks recorded by forest guards, the foot soldiers of conservation, on their daily patrols.

With 50 confirmed deaths in 2016, tiger poaching in India was the highest in 15 years, according to data compiled by the non-profit Wildlife Protection Society of India (WPSI). The statistics paint a gloomy picture for India's national animal – 1,147 tigers killed by poachers in the 26-year period of 1991-2017, an average of 47 tigers each year. And that is only the deaths that were reported.

The surge in the international demand for wild animals and their parts has brought more species under threat than ever before – the number rose from 400 in 2014 to 465 in 2016. The same period saw a 52 per cent increase in poaching and other wildlife crimes, according to a report titled *State of India's Environment 2017*. In figures published by the Centre for Science and Environment.

To fight ever-evolving threats of such magnitude, it is imperative that protection mechanisms be robust and pervade all areas that harbour wildlife. On-ground protection of forests and wildlife has two core components – patrolling and intelligence gathering. In the implementation of these two, the Forest Departments have to adapt to, and be one step ahead of, the rapidly-changing modus operandi of wildlife criminals. Technological advances have now made it possible to carry out patrolling and intelligence gathering with a degree of precision and effectiveness that was difficult to achieve a few years ago.

The launch of Project Tiger in 1973, which led to the formation of India's first nine tiger reserves, also paved the way for construction of patrolling/anti-poaching camps to facilitate year-round vigilance. Patrolling was considered integral to protection and conservation of wildlife, and the responsibility of securing these reserves lay on the shoulders of forest guards, foresters and watchers. Down the years, problems such as discrepancies in the average area to be covered by each patrolling camp, and lack of manpower, training and equipment have plagued these protection mechanisms.

For decades, patrolling was undertaken as a routine exercise, without much attention to analysis of the data collected. At every patrolling camp, guards would enter detailed information about their daily patrols in lengthy, fifty-two column registers; but those huge data sets were never analysed to draw insights for improved protection. The registers would be sent to senior officers, but the guards never received any feedback. The information was seldom compared across periods or between ranges. Not surprisingly, a 2006 report from the office of the Comptroller and Auditor General of India attributed several tiger poaching cases to 'lack of intelligence networking and monitoring failure at the field level'.

In 2010, the National Tiger Conservation Authority (NTCA) along with the Wildlife Institute of India, launched MSTrIPES, Short for Monitoring System for Tigers – Intensive Protection and Ecological Status, this vital tool is a patrol-based wildlife monitoring GIS database, designed to assist wildlife protection, monitoring, and management of Protected Areas. Under MSTrIPES protocols, forest guards are expected to patrol their beats and record their tracks using a GPS, in addition to recording observations in site-specific data sheets.

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), a wealth of information on spatial coverage and intensity of patrols emerges. Patrol maps, along with observations recorded by guards, help the management analyse trends and patterns to improve future protection efforts.

IMPLEMENTING A SOPHISTICATED PROTECTION SYSTEM

In the years that followed the launch of MSTrIPES, very few tiger reserves were able to implement the system. To enable wider acceptance of this cutting-edge protection mechanism, WCT has been working with six tiger reserves and one wildlife sanctuary in Madhya Pradesh and Maharashtra. The Law Enforcement and Monitoring (LEM) division of WCT works in collaboration with the Wildlife Institute of India (WII), the NTCA, and state Forest Departments to make patrolling more systematic and tactical.


Patrolling data, if analysed and interpreted correctly over long periods, can reveal tremendous insights to Field Directors who have a tough time protecting parks that have porous boundaries and high human densities in the buffer zones. Conflict, fuelwood collection and other pressures on India's parks are only going to increase in future. The need is to implement

LEFT Prasanna Negire, head of WCT's Law Enforcement and Monitoring (LEM) division, conducts an MSTrIPES training session for forest guards on the use of site-specific data sheets for recording information during daily patrols. **RIGHT** With the help of photographs of scenarios, objects indicating human presence, and animal signs they are likely to encounter during their patrols, forest guards learn to make detailed observations and record them on data-sheets.



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TIGHTENING THE NOOSE ON WILDLIFE CRIME

With crime at an all-time high, and conviction at an all-time low, WCT's trainings to forest guards on law and forensics aim to turn the tide, writes Rizwan Mithawala.

"Nowhere but in India can the big-game hunter get so much for his money," says the narrator of the documentary film *Tiger Shikar in India* made in the mid-1900s. The camera follows a group of armed white men on elephant back, their pursuit of a tiger being guided by a local shikari. As the shikari blows his whistle and shouts the instruction *jaa jaa*, the beaters start flushing the tiger out of the thicket with sticks and stones, unsettling all creatures of the forest. The tiger, annoyed, finally comes out growling. The moment it comes in full view of the hunters, two rounds are fired at it. The majestic predator falls on the ground, shrouded in smoke. After two more rounds, the tiger lies almost lifeless. The mahout prods the reluctant elephant that gingerly lifts its leg to trample the tiger.

India's wildlife has endured persecution over hundred years. Before the British were the Moghals, Akbar's legacy of bloodlust for big game was carried forward by his successors – history is replete with accounts of their hunting expeditions – until the end of the dynasty.

Tigers, leopards or sloth bears, all were fair quarry for princes and sahaiba alike, till hunting was finally outlawed by the Indian government in 1972. Over 80,000 tigers, more than 150,000 leopards, and 200,000 wolves were slaughtered in the fifty years from 1875 to 1925," writes historian Mahesh Rangarajan in his book *India's Wildlife History: An Introduction*.

Trophy hunting has now been replaced by poaching, fuelled by the insatiable demand for animal parts from the Asian luxury and medicine markets. Looking at the demand for body parts of just one species – the tiger – helps uncover the scale of the problem. From its bile, blood, bones and brain, to its eyeballs, penis and

whiskers (the list is longer), almost every part of the tiger is mistakenly believed to be a cure for disorders ranging from serious to mundane and even bizarre: arthritis, malaria, rabies, leprosy, pimples, evil spirits and fever caused by ghosts.

WILDLIFE CRIME ON THE RISE

India lost more tigers to poaching in 2016 than any year since 2001. According to data on poaching cases compiled by the Wildlife Protection Society of India (WPSI), we have lost 1,147 tigers in the last 24 years, an average of 47 tigers each year. But this is likely to be a fraction of the actual number. WPSI's website suggests that Customs authorities multiply detected offences by 10 to estimate the size of an illegal trade!

Poaching and other wildlife crimes increased by 52 per cent between 2014 and 2016, states a report titled *State of India's Environment 2017*. In figures published by the non-profit Centre for Science and Environment, more species are now under threat from poaching and illegal trade than ever before – the number of species has gone up from 400 in 2014 to 465 in 2016.


Another disturbing trend, also reported in *Sanctuary* (Vol. XXVIII No. 2, April 2008), is of the Internet facilitating illegal wildlife trade. In July 2016, the MoEFCC listed 106 websites that were advertising the sale of rare animals and their parts. The list included Amazon, Snupdeal, Ebay, Quikr and even YouTube!

ABYSMAL CONVICTION RATES

Conviction rates in wildlife crime cases are abysmally low across India. If one looks at Maharashtra, the conviction rate stood at a dismal 11.56 per cent according to media reports in 2015. A review of judgments delivered in six years showed that of the 147 court orders under the *Wild Life (Protection) Act, 1972* (WPA), only 17 had recorded convictions. These figures throw light on the lacunae in the investigation, documentation, and prosecution, and explain why law has little deterrence value when it comes to wildlife crime.

RIGHT Top supervisor Thakur from WCT's WLEET team demonstrates techniques for recording pugmarks during a field session on identifying tracks and signs of wild animals at the Panch Tiger Reserve, Maharashtra.

RIGHT BOTTOM WCT's forensic trainer Sanjay Kumar demonstrates forest guards to the basic, theoretical principles of forensics.



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ROADS TO NOWHERE
ROADKILLS – A CITIZEN SCIENCE INITIATIVE

By Rizwan Mithawala

30 Sanctuary Asia, April 2018 | Sanctuary Asia, April 2018 | 31

Bhagita's dominant male tiger from the Bor Tiger Reserve was knocked dead by an unidentified vehicle on a section of NH-6 that cuts through the vital corridor between the Baramati-Melghat Tiger Reserves in Maharashtra. Effective mitigation measures such as under or over-passes may have saved his life.

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TRAPPING TO PROTECT
The Camera as a Conservation Tool

Photographs by Wildlife Conservation Trust

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Dr. Anish Andheria, a conservation biologist, naturalist and wildlife photographer, is the President of the Wildlife Conservation Trust (WCT) that works in and around 160 national parks and sanctuaries in 23 Indian states. After decades of studying and monitoring wildlife and their habitats, he writes here regarding the importance of science and systematic data collection to put a finger on the pulse of the real challenges faced by tigers and their habitats.

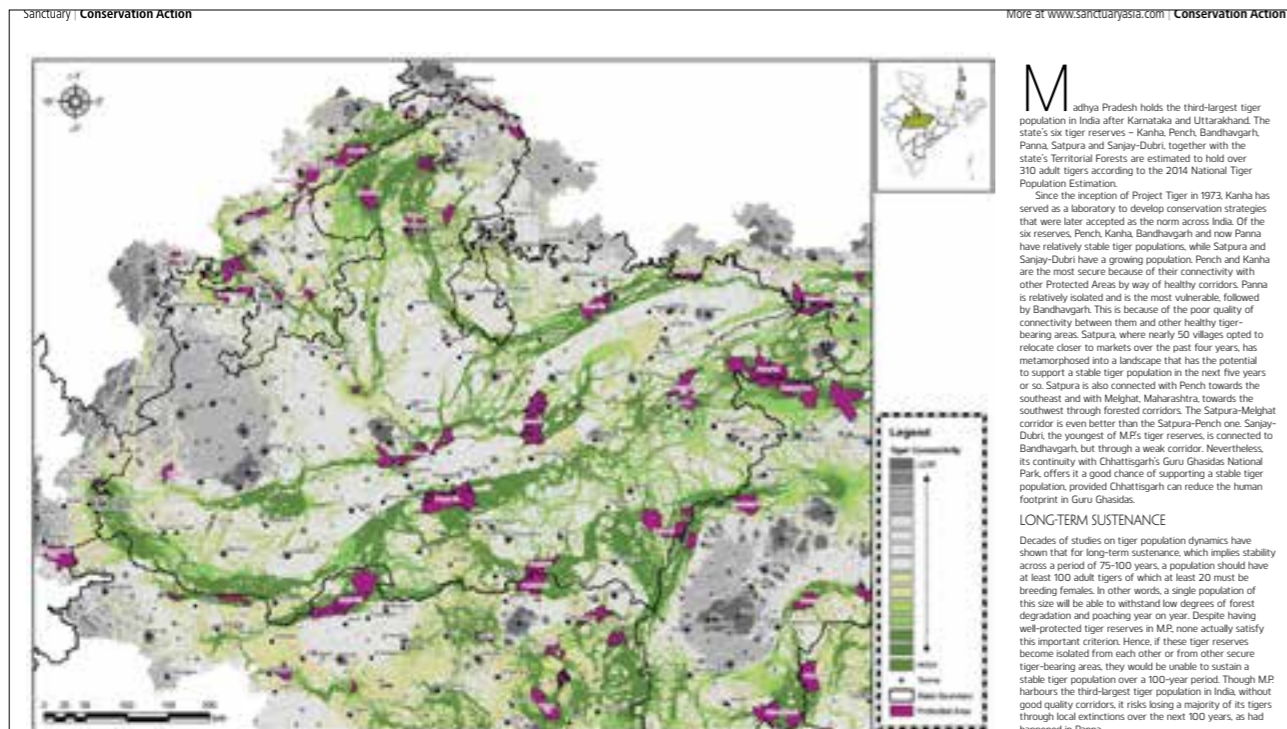
It was early August 2015, and I boarded a flight to Nagpur to have a one-on-one with the Honorable Chief Minister (CM) of Maharashtra about the importance of having wildlife underpasses in strategic locations on the National Highway-7 (NH-7) that was on the verge of being upgraded from two to four lanes and in the process permanently severing the corridor between Pench and other tiger-bearing areas to the east such as Nagvan-Nagsria and Kanha. In my meeting with the CM, instead of getting into an emotional rant on how wildlife was being short-changed by development, I chose to share the scientific findings from our long-term tiger monitoring exercise in the greater Pench landscape that included both Pench Tiger Reserves and corridors that connect Pench to other Protected Areas (PAs). Our data comprising camera-trapped tiger images unambiguously showed that even in its existing state, NH-7 was acting as a barrier for the movement of tigers and their prey. When I showed him the Minimum Convex Polygons plotted for every resident tiger of that landscape, he was taken aback to see that barring a couple of adult male tigers, no other individual was using both sides of NH-7. It took him less than a couple of seconds to decipher that disturbance created by vehicular traffic on the existing two-lane highway was restricting free movement of tigers, and within no time I had his word that he will personally ensure that adequate number and length of mitigation structures will be provided when four-lane process starts.

This speaks volumes about the value of sound science in assisting decision makers. This is one of the most vital objectives of the WCT team, which is involved with systematic and intensive monitoring of forests outside the PAs of Central India. What is showcased on these pages is a microcosm of the camera trap images collected from the corridors and Territorial Forests of Madhya Pradesh (M.P.). The exercise was carried out by WCT's field team in collaboration with the M.P. Forest Department. In the process, countless hours were spent walking arduous terrain and braving temperatures ranging from two to 45 °C to get a first-hand, granular understanding of the distribution of large carnivores, their prey, and other lesser-known, less visible species, all being impacted by human disturbances.

CAMERA TRAPPING OUTSIDE PROTECTED AREAS

The camera trapping exercise yielded some fascinating results. We found Eurasian otters in the Balaghat Forest Division from where they

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TIGER CONNECTIVITY
STRENGTHENING AND PROTECTING WILDLIFE CORRIDORS

By Dr. Anish Andheria

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Madhya Pradesh holds the third-largest tiger population in India after Karnataka and Uttarakhand. The state's six tiger reserves – Kanha, Pench, Bandhavgarh, Panna, Satpura and Sanjay-Dubri, together with the state's Territorial Forests are estimated to hold over 310 adult tigers according to the 2014 National Tiger Population Estimation.

Since the inception of Project Tiger in 1973, Kanha has served as a laboratory to develop conservation strategies that were later accepted as the norm across India. Of the six reserves, Pench, Kanha, Bandhavgarh and Panna have relatively stable tiger populations, while Satpura and Sanjay-Dubri have a growing population. Pench and Kanha are the most secure because of their connectivity with other Protected Areas by way of healthy corridors. Panna is relatively isolated and is the most vulnerable, followed by Bandhavgarh. This is because of the poor quality of connectivity between them and other healthy tiger-bearing areas. Satpura, where nearly 50 villages opted to relocate closer to markets over the past four years, has metamorphosed into a landscape that has the potential to support a stable tiger population in the next five years or so. Satpura is also connected with Pench towards the southeast and with Melghat, Maharashtra, towards the southwest through forested corridors. The Satpura-Melghat corridor is even better than the Satpura-Pench one. Sanjay-Dubri, the youngest of MP's tiger reserves, is connected to Bandhavgarh, but through a weak corridor. Nevertheless, its continuity with Chhattisgarh's Guru Ghasidas National Park offers it a good chance of supporting a stable tiger population, provided Chhattisgarh can reduce the human footprint in Guru Ghasidas.

LONG-TERM SUSTAINANCE

Decades of studies on tiger population dynamics have shown that for long-term sustenance, which implies stability across a period of 75-100 years, a population should have at least 100 adult tigers of which at least 20 must be breeding females. In other words, a single population of this size will be able to withstand low degrees of forest degradation and poaching year on year. Despite having well-protected tiger reserves in MP, none actually satisfy this important criterion. Hence, if these tiger reserves become isolated from each other or from other secure tiger-bearing areas, they would be unable to sustain a stable tiger population over a 100-year period. Though MP harbours the third-largest tiger population in India, with good quality corridors, it risks losing a majority of its tigers through local extinctions over the next 100 years, as had happened in Panna.

Habitat connectivity must therefore be seen to be critical to the survival of Panthera tigris tigris through a combination of stable corridors such as riparian/riverine forests with minimal human disturbance and well-protected Territorial Forests situated within 50 km from national parks and sanctuaries. It is equally important that the

FACING PAGE: The map (facing page) shows the actual tiger corridors in varying shades of green as identified using GIS software.

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Protecting our Protectors
Health challenges faced by India's frontline forest staff

By Dr. Chetan (Chet) Trivedy and Rizwan Mithawala

"Main bikul nahi hila... Bhaku ko laga ki main mar gaya." said M. P. Kartkey as he recounted an encounter with a sloth bear that almost killed him.

One rainy July evening in the Kanha National Park in central India, Kartkey, a forest guard then, had just finished patrolling his beat, and was making his way to the anti-poaching camp, manoeuvring through the tall, dense grass that had almost obscured the narrow trail. In the tall grass, neither man nor bear could see each other until they were uncomfortably close. To make matters worse, it was a mother bear with cubs to protect. Before Kartkey could react, the bear rose up on her hind legs. Armed with just a stick, the guard could not shield himself from the bear's paw-swipes, and suffered severe muscle tears on his waist and chest. Knocking the guard down flat on the ground, the bear began gnawing at his skull. Luckily for the guard, the bear's cubs called out causing the mother to retreat, only to resume her attack as he tried to escape. Muzzles torn, he did something that saved his life. He played dead in a fetal position. He did live to tell the tale but on his head is a dent-like, moon-shaped scar and in his memory is etched his near-death experience.

It took him 36 hours to reach the hospital. But despite the delay and his grievous injuries, Kartkey survived. Hundreds of others have not been so lucky. Between 2012 and 2017, India accounted for almost a third (162 of 520) of all ranger (frontline forest staff) deaths, according to the International Ranger Federation. In 2017 of the 100 rangers that died on-duty worldwide, 28 were Indians. Though animal attacks, most of which are accidental, account for the maximum number of ranger deaths in India, murders at the hands of poachers, timber and sand mafias and illegal miners come a close second. Vehicle accidents, drowning and forest fires together constitute the third major cause.

India's frontline forest staff risk life and limb every day as they set out for their patrols. From chasing and confronting timber smugglers or illegal fishers, to being attacked or bitten by wild animals, these unsung heroes suffer injuries ranging from fractures and snake bites to bullet wounds. Senior forest officers are at risk too. In March 2016, S. Manikandan, the Director of the Nagarhole Tiger Reserve in Karnataka was charged at and trampled to death by an elephant while he was assessing damage caused by a fire allegedly set by miscreants. Tragically, all too often, timely medical help, conspicuous by its absence in remote wildernesses, could have saved the lives of these selfless heroes.

India's frontline forest staff risk life and limb every day as they set out for their patrols. From confronting timber smugglers, armed poachers and illegal fishermen to being attacked by wild animals, it's all in a day's work for these dharti rakshaks.

Between 2012 and 2017, India accounted for almost a third (162 of 520) of all ranger (frontline forest staff) deaths, according to the International Ranger Federation.

PREVENTING AND TACKLING TRAUMA SITUATIONS

A 2014 report from the World Health Organisation (WHO) stated that 14,000 people die each day on account of injury or trauma. That totals over five million deaths every year, or nine per cent of all deaths in the world. That is 1.7 times greater than deaths from malaria, TB and HIV/AIDS combined. Trauma is in fact the greatest cause of death in the 15-19 age group and is the third most common cause of death in 30-49 year olds globally. Given the scale of this problem, trauma can certainly be considered a neglected global disease.

As might be imagined, the problem is greatly magnified in remote jungle settings. This is why many avoidable frontline-forest-staff deaths take place. If even the most basic training and equipment were on hand, lives would be saved.

This is why WCT has chosen to work towards mitigating such avoidable deaths across tiger reserves in central India. To date, 21 trauma-training camps have been held and over 1100 frontline staff from 13 tiger reserves and one wildlife sanctuary have been trained. During these training programmes, staff are imparted practical training in skills such as cardiopulmonary resuscitation (CPR), choking first aid, management of fractures and snake bites, point-of-care testing for malaria, dealing with major trauma, and extraction.

Range Forest Officer Divesh Khairati from the Kanha Tiger Reserve puts it simply, "The skills learned at WCT training camps help us to buy time and prevent the patient's condition from deteriorating till they are taken to the hospital". As part of the training, staff members are also provided with a First Aid First Guide for Forest Staff in regional languages. The guide informs them of health emergencies and techniques that can be used in remote locations. WCT is also developing a cost-effective and sustainable model to provide emergency trauma care and training to frontline forest staff.

Equipping forest guards in harm's way with knowledge and skills is almost as important as ensuring that equipment and medicines are on hand during emergencies in the field. We are now focusing on training the trainers so that Protected Areas (PAs) are able to enhance their life-saving capacity in their own landscapes. An international conference in London focused on the impact that health problems such as malaria have on conservation effectiveness is on the anvil. Christened Tubacoo2018, the initiative is being organised by the Tubi Foundation and supported by WCT. The bottom line is that the safety of wildlife is inextricably linked to the health and well-being of wildlife protectors.

Frontline forest staff, by protecting the nation's forests, rivers and biodiversity, ensure our access to clean air and water, and help mitigate climate change. The role of these ecosystem protectors in our national security, and the perils they face on duty, are at par with the armed forces.

Yet, inside India's 769 PAs, there are only three effectively equipped forest dispensaries. The question must therefore be asked: Are the lives of these dharti rakshaks (earth protectors) not a priority for India?

The next article in this series will discuss in detail the problems that frontline staff face while protecting wildlife.

Dr. Chetan (Chet) Trivedy's Tubi Foundation works on improving the health of communities living and working around conservation areas. As WCT's Chief Medical Officer, he leads the trust's interventions aimed at improving the health of frontline forest staff.

Rizwan Mithawala is a Conservation Writer with the Wildlife Conservation Trust and a Fellow of the International League of Conservation Writers.

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Financial and Sustainability Report

The development sector has been at the forefront making invaluable contributions to India's evolution after seven decades of independence. The growth in the sector itself has been outstanding touching various parameters, causes and drawing in stakeholder participation in creating a unique momentum.

Conservation is a niche but low priority sector in a country ridden with a plethora of challenges. However, it has begun to gain in prominence in the last two decades. Whilst, the Wildlife Conservation Trust has made a significant impact in the area, resourcing long term funding to create a framework for future sustainability continues to be a challenge as conservation as it is, still stands low in the rung.

The organisation has traced a history of a committed pool of funds donated generously by one of the members of the trustee board who is passionate about conserving nature and protecting wildlife. This funding support is the corner stone on which the vast ambit of work that WCT stands. Over the last decade WCT has made conscious effort to build a corpus. It has also initiated collaborations at the international level to fund programs, build capacities, exchange and share ideas and information.

On a parallel level it has sought to capitalise on the amendments to the Companies Act 2013 which has brought Corporate Social Responsibility (CSR) in the forefront. Although, by virtue of this amendment various aspects of conservation have been put on the national map of the country, conservation is still not a low hanging fruit which appeals to corporates and their foundations. CSR is still in the nascent stage in our country and a number crunching game and it will be awhile before CSR funds are diverted in a big way to one of the most important national mandates. Needless, to say there are a few evolved ones (including individual philanthropists) who have come forward to partner in these areas and nurture the conservation sector garnering the much needed support.

Today WCT stands on the threshold of developing long term strategies to sustain their work through specific donor support weaved through CSR initiatives and seeking support from high net-worth individuals who have conservation close to their heart. It has structured a result based management approach whereby it has now set up systems and processes to develop annual work plans and budgets across all verticals, leading the development of the organisation's budget as whole. This is a critical exercise which translates the work into numbers and relates inputs to outputs and outcomes giving a clear indication of the long term impact the funding support are expected to create.

Over the next few years, WCT has sketched the road map which will focus on fine tuning its expenditures and exploring opportunities to fund its many programs through this result based management approach. This will slowly create the momentum of sustaining its work through appropriate channelisation of community funds through CSR support to the cause.

The audited financial statement for the year ended 31st March 2019 reflects the robustness of the organisation. The numbers tell a story of the journey of the organisation during the financial year and its financial position at the end instilling confidence in the various stakeholders of the quality and transference of the work and the accounting procedures.

WCT also takes this opportunity to acknowledge the contributions of its donors, corporate partners, international partners, individuals and well-wishers whose support is invaluable as the organisation embarks on a new journey.

All figures in Rs.000s

ABRIDGED INCOME & EXPENDITURE ACCOUNT		
INCOME	2018-19	2017-18
Donations in Cash or Kind	92,126	84,106
Grants	20,996	68,482
Interest	34,984	35,951
Surplus/Deficit for the year	1,810	0
Total Income	1,49,916	1,88,539
EXPENDITURE		
Establishment Expenses	32,902	28,302
Depreciation	12,468	10,395
Expenditure on Objects of the Trust	1,04,546	1,49,292
Surplus carried over to Balance Sheet	0	550
Total Expenditure	1,49,916	1,88,539

ABRIDGED BALANCE SHEET		
FUNDS AND LAIBILITIES	2018-19	2017-18
Corpus Funds	4,73,171	4,49,471
Earmarked Fund (CSR Grants)	25,959	10,497
Provision for Expenses	1,926	2,468
Income and Expenditure A/c	50,885	50,334
Surplus/Deficit for the year	-1,810	550
Total	5,50,131	5,13,320
PROPERTY AND ASSETS		
Fixed Assets	37,436	34,659
Investments	3,29,000	3,07,500
Advances	4,591	3,664
Outstanding Interest	1,827	971
Receivables and others	2,563	3,108
Deposits with Banks	1,52,450	1,42,748
Cash/Bank Balances	22,164	20,670
Total	5,50,031	5,13,320

Summarised from Financial Statements audited by M/s Gunderia and Co., Chartered Accountants
Dated:- October 24, 2019 at Mumbai





WCT has registrations under Section 80G of the Income Tax Act, 1961; Section 12-A (a) of the Income Tax Act, 1961; Bombay Public Trust Act 1950; and the Foreign Contribution Regulation Act, 2010

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