National Tiger Conservation Authority

stripes

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India's Tiger Census Gets Into Guinness Records

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MESSAGE FROM THE MEMBER SECRETARY

The tiger, an integral part of Indian social ethos, is the umbrella species for conserving the biodiversity of ecosystems. Conservation of tigers ensures the conservation of all floral & faunal species at various trophic levels, water security and ecosystem services to mankind. India's wild tigers accounts for more than 75% of the global tiger population. India has played the leadership role in fostering wild tiger conservation & management at the global level by taking up several milestone initiatives. India has a vast network of 50 tiger reserves in 18 tiger range States across the country with an area of 72749.02 sq. km. (2.21% of the country's geographical area). India has achieved the target set by the St Petersburg declaration on tiger conservation (to double the number of wild tigers (T X 2) across their global range by 2022) well ahead of the stipulated period in 2019 itself. Now, the IVth cycle of All Indian Tiger estimation carried out in 2018-19 has been acknowledged as Guinness World Record being the largest ever camera trap wildlife survey.

This issue of STRIPES Quarterly journal mainly covers the protection and monitoring efforts and the relief measures undertaken by the tiger reserves management during the COVID 19 lockdown period. Other important issues covered inter-alia includes a critical analysis of Tiger Conservation in India, importance of green buffers to stop zoonotic pandemics, discovery of rare orchid in Dudhwa & virtual tourism.

I commend efforts of entire NTCA team in bringing out this issue and I hope that this will facilitate the dissemination of the innovative activities going on under Project Tiger /NTCA umbrella for the readers. ●

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NEWSMAKERS

Tigers Walk Into Guinness World Records

The fourth cycle of the All India Tiger Estimation 2018, results of which were declared to the nation on Global Tiger Day last year by Prime Minister, Shri Narendra Modi has entered the Guinness World Record for being the world's largest camera trap wildlife survey

The Environment Minister has noted that under the leadership of Prime Minister, Shri Narendra Modi, India has fulfilled its resolve to double the tiger numbers four years before the target. The country now has an estimated 2967 tigers as per the latest census. With this number, India is home to nearly 75% of the global tiger population and has already fulfilled its resolve of doubling tiger numbers, made at St. Petersburg in 2010, much before the target year of 2022.

The citation at the Guinness World Record website reads- "The fourth iteration of the survey – conducted in 2018-19 - was the most comprehensive to date, in terms of both resource and data amassed. Camera traps (outdoor photographic devices fitted with motion sensors that start recording when an animal passes by) were placed in 26,838 locations across 141 different sites and surveyed an effective area of 121,337 square kilometres (46,848 square miles). In total, the camera traps captured 34,858,623 photographs of wildlife (76,651 of which were tigers and 51,777 were leopards; the remainder were other native fauna). From these photographs, 2,461 individual tigers (excluding cubs) were identified using stripe-pattern-recognition software. As well as unprecedented camera trap usage, the 2018 "Status of Tigers in India" assessment also conducted extensive foot surveys that covered 522,996 km (324,975 mi) of trails and sampled 317,958 habitat plots for vegetation and prey dung. It's estimated that the total area of forest studied was 381,200 km2 (147,181 sq mi) and cumulatively the collection and review of data equated to some 620,795 labour-days."

The All India Tiger Estimation done quadrennially is steered by the National Tiger Conservation Authority with technical backstopping from the Wildlife Institute of India and implemented by State Forest Departments and partners. The latest results of 2018 had shown that India now has an estimated 2967 tigers out of which 2461 individual tigers have been photo captured, a whopping 83 % of the tiger population, highlighting the comprehensive nature of the survey.

There is hardly any parallel of such a focused species oriented program like Project Tiger across the world, which started with 9 Tiger Reserves, with 50 tiger reserves currently. India has now firmly established a leadership role in tiger conservation, with its bench marking practices being looked at as a gold standard across the world. ●

TIGER RESERVES IN FOCUS
CHALLENGES DURING LOCKDOWN AND COVID-19 PANDEMIC

Bandhavgarh Tiger Reserve

The staff was alerted about the possible increase in illegal activities in the tiger reserve during the lockdown period as many anti-social elements will try to take undue advantage of these times. Patrolling intensity was increased and resources engaged in tourism management have also been diverted towards patrolling efforts. As a result many attempts at hunting, illegal felling were thwarted.

Distribution of ration kits, hand sanitizers, soaps and masks
Field officers, staff and labourers were provided cloth masks, sanitizers and soaps. Central Government guidelines regarding Covid-19 prevention were also translated in local language and distributed.

Support To Villagers
Bandhavgarh Tiger Reserve has 143 villages in its surroundings. The lockdown has created economic distress in many needy families of these villages. In some of the villages, villagers who are more needy like handicapped, widows were given support in form of ration kits. Total 250 Ration kits were distributed in the buffer villages of BTR. Awareness generation programe were held in Forest village of Bagdari. Interested villagers, guides are being engaged in patrolling activities.

Range	Masks	Sanitizers	Soaps	Ration Kits
Tala	26	20	60	55
Maghdi	26	20	60	20
Panpatha Core	26	20	60	21
Kalwaah	26	20	60	19
Dhamokar	26	20	60	30
Panpatha Buffer	26	20	60	21
Pataur	70	20	60	50
Manpur	26	20	60	31
Khitauli	26	20	60	68
Tourism office	10	20	25	35
FD Office	12	20	35	-
TPF	-	-	-	6
Elephant Camps	-	-	-	10

Forest Fire Mitigation and Control
The lockdown period is coinciding with the fire season which requires a constant effort in detection, mitigation and putting out the forest fires. To support the ground staff in the lockdown period, tools like leaf blowers were used to create fire lines and douse fires saving both effort and time.

Melghat Tiger Reserve

The Melghat Tiger Reserve's (MTR) fire cell in Amravati has become a role model for the forest department when it comes to controlling and monitoring forest fires. Melghat fire-cell has brought down the area under forest fires from 10,764 hectares (107sqkm) to 1,000 hectares (10 sq km) in the last three years, MTR's fire cell was set up in 2018 and is the first such cell in the state.

Kanha Tiger Reserve

Kanha has a very good regimen of patrolling since a long. Patrol comprising of group of staff drawn from different areas of the tiger reserve and whenever possible headed by senior officer brings about bonding and integration among the large number of staff and officers in the tiger reserve. Participation by senior officer in patrolling creates not only serious about patrolling but also elevates pride involved in conducting patrol.

Sariska Tiger Reserve

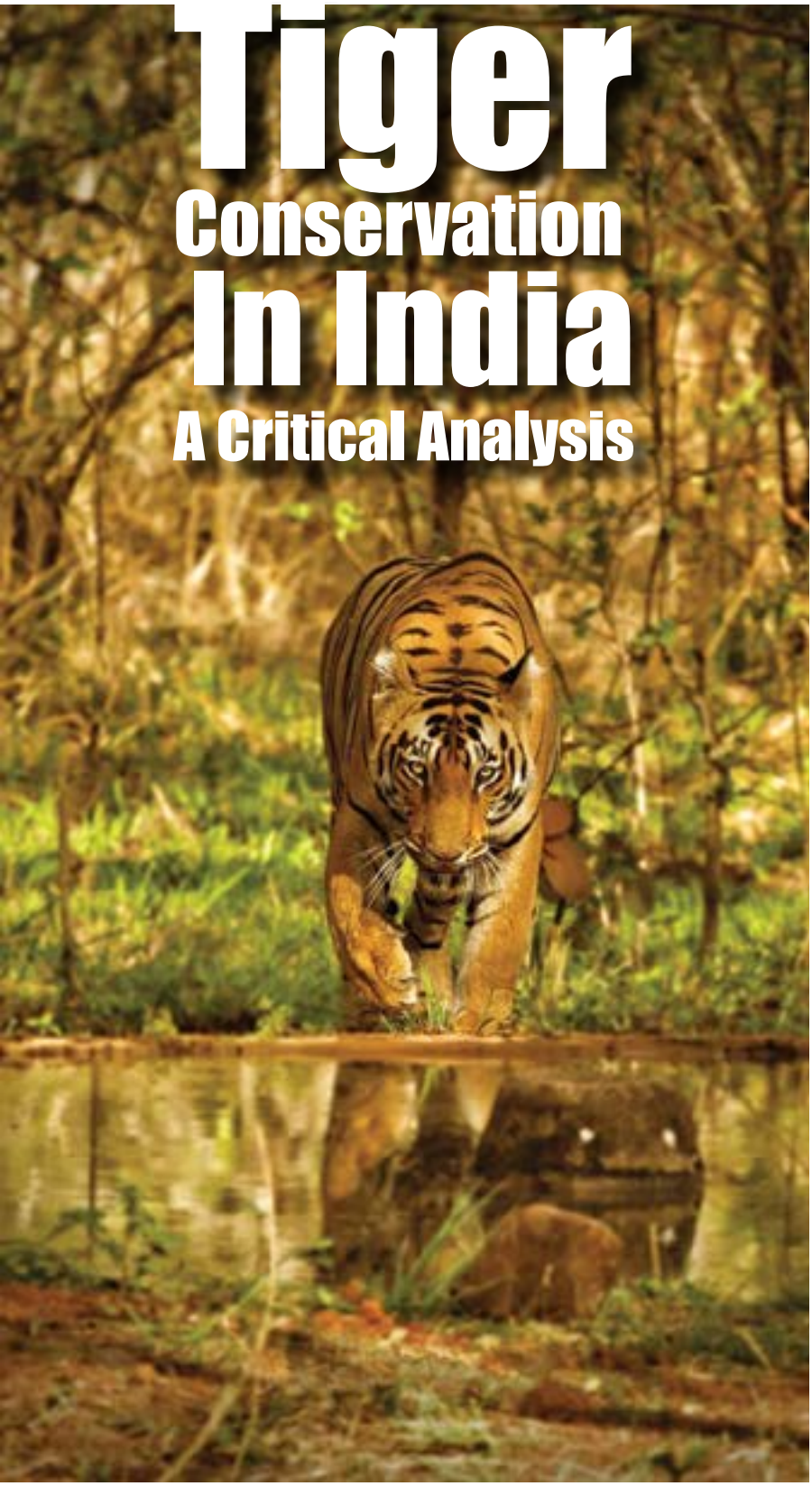
Safeguarding the new generation of tigers of Sariska Tiger Reserve is the topmost priority and protection of this new stock is a constant challenge to Sariska Tiger Reserve's administration. First important step to protection is the monitoring and hence, 24x7 tiger monitoring program was established with the help of Wildlife Institute of India for monitoring these tigers.

Out of the current tiger population in Sariska Tiger Reserve nine tigers were translocated from RTR and 16 tigers were born on the soil of Sariska.

During the COVID-19 pandemic, the ground staff and monitoring parties are following all the social distancing guidelines as well as wearing masks during the field work. All precautionary measures are been taken on the division level to reduce the risk of contamination. The birth of one cub to ST-10 and three cubs to ST-12 during the COVID-19 pandemic has brought inspiration and energy amongst the staff to work towards the brighter future of tigers in Sariska.

SPECIAL FEATURE

Tiger Conservation In India
A Critical Analysis



Photographs: Mona Patil and Sanjay Shukla, APCCF IT, Bhopal, MP

■ By S. P. Yadav

The seminar hall at the Prime Minister's residence was filled with a sense of jubilation when the PM Narendra Modi announced the results of 2018 countrywide tiger estimation on 29 July 2019, which happened to be the Global Tiger Day. The tiger numbers have risen to 2967 with lower limit of 2603 and upper limit 3346. The Prime Minister announced with a sense of pride that India has achieved the target of doubling of tiger population four years ahead of its schedule due in 2022 as per the St. Petersburg Declaration of 2010 on tiger conservation.

Now among all 13 'Tiger Range Countries', only India, besides Nepal, has the distinction of doubling their tiger numbers from the baseline year of 2010, well ahead of 2022. Status of tiger at global level is still endangered and a cause of serious concern. Though the tiger population has shown an increasing trend in India, Nepal, Bhutan and Russia, in all other countries the population is declining, and in countries like Cambodia, Vietnam and Cambodia either they have lost all their tigers or they do not have functional tiger population in the wild. The tiger estimation results were testimony of the hard labour put in by thousands of forest and wildlife staff, the foot soldiers at frontlines who are fighting the battle tirelessly round the year and round the clock to save the national animal and its habitat, despite vagaries of weather, flood, forest fire, drought and frost.

Conservation of wildlife is deeply imbibed in our cultural ethos and that's the reason that 1.3 billion people are living with world's 70 per cent tiger population, India is home to the only Asiatic lion population thriving in Gir landscape, highest number of one horned rhinoceros, largest population of Asiatic elephants!

Why Tigers?

The tiger has become a symbol of wildlife conservation in India. Since tiger is at the apex of the biological pyramid, its conservation is possible only if its whole habitat and eco-system are protected. Tiger keeps the herbivore or ungulate population under control and thereby saves the vegetation from overgrazing, land degradation and denudation. It also maintains good stock of animals by eliminating weak, infirm, old and diseased individuals. Tiger acts as the best protector of forests from the pilferage. It maintains ecological balance of the area. It is the most colourful creature which arouses public attention, brings life to forests, makes it thrilling and

attracts tourists from world over. Tiger is known in the world as an animal with rare combination of charisma, magnanimity, colour, strength, ferocity, composure and awe. About 350 sweet water streams either originate from the tiger reserves or have their major catchments in tiger reserves, therefore, for water security of the country alone, we need to conserve and protect the tiger and their habitat.

Historical perspective

The earliest historic records of seals with impressions of tigers, as old as 2500 BC, are from Mohenjo-daro one of the largest settlement of the in the Indus valley civilisation. The tiger was distributed over much wider geographical region in and before 19th Century, ranging from the Mount Ararat in eastern Turkey and the Caspian Sea to the Sea of Okhotsk in the western Pacific Ocean. In the eastern parts, tiger occurred in northern Afghanistan, Iran and Russia. In the northern region the tiger occurred throughout Korea (North & South) and eastern parts of China and the entire South-East Asia including Islands of Hongkong, Singapore, Bali, Java, Sumatra but excluding Borneo. The tiger was found in almost all over the Indian sub-continent except in the alpine snow clad mountains of Himalayas, extreme western deserts of Thar and Sri Lanka. Its range in India was the Sal forests of Kaleshar in Haryana, tropical dry forests of Sikar in Rajasthan, dry deciduous forests of Banaskantha, Panchmahal, Dangs in Gujarat, and coastal forests of Maharashtra in the West. In the South, tigers were quite common in Karnataka, Hyderabad and parts of Tamil Nadu. The sal forests of Bihar, Orissa and dry deciduous teak and miscellaneous forests of Orissa and Madhya Pradesh were favourable habitats of tiger. The mangrove forests of Sundarbans were considered as in-exhaustive source of tigers. The evergreen and semi evergreen forests of the eastern region were supposed to be the real home of tigers. The entire tract of the Indo-Gangetic plains, foothills and sub-mountain region of the Himalayas from East to West were the famous tiger lands of India.

At present spread and tiger occupancy has considerably reduced. Now the tigers in India are confined to Shivalik-Gangetic Plain Landscsape, Central Indian Landscape, Eastern Ghat Landscape, Western Ghat Landscape, North-East Hills and Bramhaputra Flood Plains and Sundarbans. Tiger occupancy in these areas is 88,985 sq. km. as reported in the results of tiger estimation 2018.

Tiger Census

The estimate of tigers has been always a wild guess. E.P.Gee (1966) estimated existence of 40,000 tigers at the end of 19th Century and about 4000 in 1965. According to Jim Corbett (1955), the number of tiger was not more than 2,000. A systematic State wise estimate was made in 1969 and the number of tigers existing then was considered to be about 2500.

During 1972, a more systematic pugmark based census was organised by collecting field information from each forest block by tracing foot prints and assessing tiger population by direct or indirect intersection. The operation was conducted throughout India between 22nd to 28th April in the eastern region and 15th to 21st May1972 in the rest of the country. This yielded valuable information. The census estimated a total of 1827 tigers according to the 'Report of Task Force, 1972, Government of India.'

This census figure (1972) is considered as the baseline of tiger population for comparison and trend analysis. Since then the census has graduated into tiger estimation which has become highly scientific and technical, using camera traps in statistical framework.

Launch of Project Tiger

The Indian Board of Wildlife (IBWL) was constituted in 1952 as an advisory body to the Government. Its members were drawn from conservation experts across the country. The main function of the IBWL was to advise the GOI on all aspects of wildlife conservation, and management of National Parks and Wildlife Sanctuaries. The IBWL was also mandated to promote and support action for conservation of wildlife for its cultural, scientific, recreational and economic values.

It was estimated that hardly 2000 tigers were left in the wild in the country during early seventies and hence, the IBWL constituted a Task Force under to suggest measures to save the species from extinction.

The IUCN, considering the precarious situation of the Royal Bengal Tiger in its 10th General Assembly held at New Delhi in 1969, unanimously adopted a resolution calling for moratorium on hunting of tigers till the ecological status of tiger is correctly known on scientific basis. The IUCN recommended to all the concerned Governments to give complete protection to tigers. Accepting this Resolution, the IBWL advised all States to put ban on hunting of tigers, at least for a period of 5 years. The then Prime Minister Mrs Indira Gandhi took personal interest in the matter and the tiger hunting was banned throughout India by July, 1970.

Objectives of Project Tiger

Based on the recommendation of the Task Force led by Dr Karan Singh, Project Tiger was launched on 1st April 1973 at the Corbett National Park. Initially, Project Tiger was implemented at nine reserves namely Manas, Palamau, Similipal, Corbett, Ranathambhore, Kanha, Melghat and Bandipur-Nagarhole.

The objectives of the Project Tiger were to ensure the maintenance of viable population of tiger in India for scientific, economic aesthetic, cultural and ecological values; to preserve, for all times, areas of such biological importance as a national heritage for the benefit, education and enjoyment of the people.

What is a viable population?

The Technical Document of the National tiger Conservation Authority (NTCA) (NTCA/01/07) describes a "viable" tiger population as follows -

"Based on the demographic parameters and life history traits of tigers population simulation models suggest that if a core area having territories of 20 breeding tigresses were made inviolate, the resultant tiger population with an adequate buffer (multiple land use area with eco-sensitive land use) has a very low probability of extinction (less than 5% in 100 years). Tigress's territory is determined by prey availability which in turn is dependent on the productivity

of the area. The size of this inviolate area depends on the average territory size of tigresses. These range between 40 to 60 Km2 within most of the tiger areas in the sub-continent. Thus, for a population of 20 tigresses, we need an inviolate area of 1000-1200 sq. km. An ecological sensitive zone (buffer, co-existence area, multiple use area) around this inviolate space is needed for sustenance of dispersal age tigers, surplus breeding age tigers and old displaced tigers of 1000-3000 Km2. This buffer and the tiger population within it is essential to make the core of 20 breeding females viable for long term, since it sustains the dynamics of source and sink. Such tiger will sustain a population of 75-100 tigers."

Sariska debacle

Disappearance of tigers from Sariska Tiger Reserve in the year 2005 came as a rude shock to the nation and wildlife lovers were stunned! I would say that this was the biggest crisis faced in the history of tiger conservation in India. The Government responded by appointing a Tiger Task Force. This Task Force submitted a report to the Government titled "Joining the Dots."

The Task Force was mandated not only to look into causes of tiger disappearance from Sariska but also to look into practice of tiger conservation in in the country and give recommendations so that Sariska like situation does not arise anywhere else. Therefore, Sariska was not only a crisis but also became an opportunity to bring in transformational changes in the way the Project Tiger was being implemented. Clearly, the time had come to review the past and also to secure the future.

The Task force Report observed that the pug-mark method of counting tigers as the best example of the practice becoming unscientific over time, and agreed that this method needs to be replaced by more scientific robust methodology.

The Sariska debacle went unnoticed also because information on tiger numbers there was fudged and authorities were still reporting presence of tigers by showing plaster cast of pug marks when there were no tigers!

The Task Force further observed that the simplest way to protect the tiger is to render inviolate the space it roams in, catching prey. In India, this means keeping all people out of forests declared as protected areas. As people live in reserves, they need to be 'relocated' on voluntary basis so that the space is made 'inviolate' and undisturbed.

A lot of people reside in and outside the tiger reserves. Most of these inhabitants are poor and heavily dependent on natural resources for their survival. The Task Force observed that a strategy of inclusive protection should be even more of the essence of future conservation in India because of the internecine conflicts — between people and park managers, or regarding resource use — breaking out on the park fringes. Ease the pressure on the forest; the forest will regenerate. The pressure on the tiger is bound to ease. This paradigm of 'inclusive conservation' will safeguard the tiger.

The Tiger Task Force reviewed the work done over these years and advocated the following urgent actions -

• Create National Tiger Conservation Authority by providing enabling conditions in the Wildlife (Protection) Act, 1972.

• Create multi-disciplinary Wildlife Crime Control Bureau.

• Change the method of tiger counting from obsolete census based on pug marks count to estimation based on scientific methodology.

• Reinvigorating the constitution of governance.

(i) Strengthening efforts towards protection of tiger, checking poaching,

(ii) Convicting wildlife criminals and breaking the international trade network in wildlife body parts and derivatives.

• Expanding the undisturbed areas (inviolate space) for tiger by reducing human pressure.

• Improve the relationship with local people who share the tiger habitat by fielding strategies for coexistence.

• Regenerate the forest habitats in the fringes of the tigers' protective enclaves by investing in forest, water and grassland economies of the people.

After accepting the recommendation of the Tiger Task Force, the Government kick started several transformational

The depletion of tiger population in the country has been mainly due to shrinkage of tiger habitat, biotic interference in habitat, hunting of prey animals, poaching of tigers and poisoning

actions. The Wildlife (Protection) Act, 1972 was amended in 2006 and separate chapter on tiger was inserted; NTCA and WCCB were created; methodology of tiger estimation was changed to more robust and scientific one using camera traps; core-buffer-corridor strategy was adopted; village rehabilitation on voluntary basis with generous incentive was introduced and so on. All these actions paved the way for tiger recovery in India.

Factors adversely affecting tiger population

Poaching is the biggest cause of tiger population decline. It would not be exaggeration to say that every living tiger out in the wild is under threat of poaching, because poaching networks are active wherever tigers exist. Poaching in our country is demand driven and takes place because demand exists in consumer countries like China, Vietnam, Lao PDR and Cambodia.

With the number of increasing neo-rich in these countries the demand seems to be insatiable. A large number of poor people live in and around tiger reserves, and they fall prey to traders and poachers in assisting them for few thousand rupees. It has been observed that in most of the poaching cases, hunting tribes are involved. They have been reported to travel far flung and remote areas to kill tigers for their livelihood.

The depletion of tiger population in the country has been mainly due to shrinkage of tiger habitat, biotic interference in habitat, hunting of prey animals, poaching of tigers and poisoning. Mass hunting tradition of tribal in Odisha and West Bengal, and some parts of Chhattisgarh, just wipe out any wild animal they encounter.

Maoism in Palamau, Sitanadi-Udanti and Indrawati Tiger Reserve is not allowing park management to do any scientific management, even monitoring of tigers and prey. Naxal led attack on Similipal Tiger Reserve in 2008 destroyed infrastructure and instilled a fear among the staff, however, this reserve is on the path of recovery.

The new findings indicate a poor status of tiger population in areas outside tiger reserves and some protected areas. The tiger population, by and large, in tiger reserves and in some protected areas of the 18 tiger states are viable, while requiring ongoing conservation efforts.

Degradation of forest status outside protected areas and tiger reserves is owing to human pressure, livestock pressure, ecologically unsustainable land uses, Fragmentation leading to loss of gene flow from source populations, Loss of forest quality in terms of prey biomass, Loss of reproduction in tigers owing to disturbance on account of heavily used infrastructure like highways, etc., Lack of adequate protection in outside areas, insurgency, law and order problems.

The Global Tiger Initiative (GTI)

The Global Tiger Initiative (GTI), founded by the World Bank, emerged as a fresh wave of energy in 2008 when it started advocating tiger agenda at the global level and more particularly with Tiger Range Countries (TRC). The 13 TRCs were brought on one platform and mobilised support from leaders like Putin to arrest the decline of tiger population across the world. This movement peaked by organising the Global Tiger Summit (International Tiger Forum) at St. Petersburg, Russian Federation in 2010. This Summit was a probably the first of its kind high octane event organised for a wild animal where heads of Countries of several TRCs, Ministers, officials, major NGOs, experts, financial institutions, media personalities participated. This mega event was hosted by President Putin in grandeur. The Summit adopted a Global Tiger Recovery Programme (GTRP) which it turn was compilation of National Tiger Recovery Programmes (NTRP), containing priority actions of each TRC. The Summit also came out with a Declaration on Tiger Conservation which presents a fine blue print of action points to arrest declining tiger population and priority action for its recovery. This declaration was largely based on the policies and strategy of tiger conservation in India. This declaration came out appealing all TRCs to celebrate 29 July as the Global Tiger Day to raise awareness about the status of the tiger.

Though, never committed for doubling the tiger numbers at the country level, India agreed to double the tiger numbers at the global level across its ranges. However, achievement of this distinction 4 years early is a great testimony of India's commitment for conservation of its national animal tiger.

During the pre Tiger Summit Partners' Dialogue Meeting at Bali, Indonesia in July 2010 where discussion was going on the draft declaration of the Summit, I as the Head of Indian Delegation was asked repeatedly by experts that why India cannot commit for doubling its tiger numbers by 2022? At that point of time our view was very clear that we are moving in right direction of a core-buffer-corridor strategy with more emphasis on protection by involving local people, and unless more areas are brought under the umbrella of Project Tiger, doubling the tiger number will lead to severe human-tiger conflicts which will be not good for tiger conservation in India.

What went right for the tiger?

Over the past decade, on back of solid science, the tiger conservation in India has evolved into more of a scientific management based on reserve specific Tiger Conservation Plans. There are several factors which contributed towards success in conservation and rise in tiger population as compared to the 2014 All India tiger estimation. The major

ones are:

• During 2010 when the tiger numbers were 1411, all time low, the number Tiger Reserves were 38 with a total area of 56,290.57 sq. km. However, at present, the number of tiger reserves has gone up to 50, covering an total area of 72,749 sq. km. If we compare with the last all India tiger estimation of 2014, there were 46 tiger reserves in the country. Four new tiger reserves were notified in the intertwining period, bringing additional 3,167 sq. km. area under tiger conservation.

• Tiger occupancy in the country has shown an increasing trend since 2010. During 2010 the tiger occupancy was 81,881 sq. km., in 2014 it was 88,558 sq. km. and in 2018 estimation, the tiger occupancy area increased to 88,985 sq. km.

• Monitoring of tigers, co-predators and prey, and their habitat on scientific basis regularly in all tiger reserves. This helped in keeping the track of tiger population in reserves. The "M-STrIPES" (Monitoring System of Tigers' Intensive Protection & Ecological Status) introduced by the NTCA way back in 2010, has now graduated into the smartest patrolling tool in the world. Use of this App based patrolling and monitoring tool has been made mandatory in all Tiger Reserves by the NTCA. Camera traps are being very widely being used by the field managers to record status of tigers and other wildlife in their reserves as an annual exercise under Phase-IV protocol of monitoring.

• Protection level has increased over the years. Under the ongoing Centrally Sponsored Scheme of Project Tiger funding support is generously provided to deploy local people as Tiger Protection Force which is a great means of providing livelihood to the local people besides getting their support in tiger conservation. The Special Tiger Protection Force Battalions have been created and stationed in sensitive Tiger Reserves like Dudhwa, Corbett, Tadoba, Pench (Maharashtra), Navegaon Nagzira, Melghat, Bandipur, Ranathambhore, Similipal and Kaziranga. The NTCA has issued generic guidelines for Security Plan which is mandatory for implementation by each tiger reserve. Not only security planning, but now the NTCA has embarked on Security Audit of tiger reserves, by independent auditors, on annual basis.

• As envisaged by the Tiger Task Force, now all Tiger Reserves have buffer areas notified which provides a cushion to the core areas of tiger reserves from the adverse impact of biotic pressure and threat of poaching.

• Huge investment has gone into creation of inviolate space, for breeding purposes of tigers, which acts as nucleus from where tigers disperse into surrounding areas. Since the inception of Project Tiger approximately 14,441 families have been rehabilitated outside tiger reserves from the core areas. All this vacated lands from such relocation have been converted into grasslands supporting large number of herbivore population.

• Proper habitat management based on scientific management plans called Tiger Conservation Plan which is good for long term implementation of the tiger conservation strategy leaves no space for adhocism to managers.

• Tiger Conservation Foundations have been created in almost all Tiger Reserves through which gate money/ entry fee to the Park is recycled for conservation purposes in the park itself. This provides an excellent cushion to the Manager as a reserve of financial resources. It takes care of delay in fund release by the State or Central Government.

• Several Standard Operating Procedures have been created by the NTCA to support field managers. These SOPs handy ready reckoner and guide for the field staff to deal with tiger death, tiger straying, orphan cubs, active management, disposal of carcass etc.

• Each tiger death is treated with utmost seriousness and prima facie considered as a case of poaching, unless proven otherwise. If death is due un-natural causes, the case is taken to a logical conclusion and legal course of action is taken. Post-mortem is also mandatory, in the presence of NTCA's nominee to establish cause of tiger death. These initiatives have brought a lot of transparency in the cases of tiger deaths.

• Since the launch of Project Tiger in 1973, the total funding support provided under the ongoing Centrally Sponsored Scheme of Project Tiger till 11th five year plan was only Rs 1092.85 crore, followed by Rs 166.7 and 172.29 crores during 2012-13 & 2013-14. Whereas, from 2014-15 to 2019-20, the budget allocation to Project Tiger has gone up whooping to Rs 1,768.23 crore. This significantly higher central assistance during the NDA regime has helped Tiger Reserves in strengthening protection, infrastructure in reserves, deployment of human resources, intensive monitoring and so on.

• Since 2006, at the interval of 4 years, country wide independent Management Effectiveness Evaluation of Tiger Reserves is being done which brings out strength, weaknesses, opportunities and threats besides suggesting measures increase the effectiveness of management in each Reserve. This has been very effective and a guiding hand to the managers to identify the issues where they are doing right or wrong. This helps in prioritising actions on ground for further improvement.

• As estimated in 2014 All India Tiger estimation, approximately 26% tiger population is outside Tiger Reserves. These tigers are most vulnerable for poaching as the status of protection is lesser in such areas as compared to the tiger

Can the tiger population be increased further? Yes, there is scope of more improvement

reserves. The NTCA has launched CA/TS (Conservation Assured Tiger Standards) in tiger habitats outside Tiger Reserves. This has brought focus of management in tiger rich areas like Lansdowne, Ramnagar, 24 South Parganas, Ratapani, Bramhapuri, Haldwani, Balaghat etc. The Lansdowne and Ramnagar Forest Divisions in Uttarakhand have already been accredited as CA/TS compliant site by the CA/TS International Committee.

What next?

Looking into a long history of successful tiger conservation in India, the question comes what's next? What could more be done to sustain the tiger population in the country? Can the tiger population be increased further? Yes, there is scope of more improvement. Some of the major steps to be taken are:

• There are low density of tigers in many tiger reserves and in some tiger reserves there are pockets of low density for example Buxa, Dampa, Achanakmar, Palamau, Udanti-Sitanadi, NSTR, Amrabad, Dandeli-Anshi, Sanjay-Dubri, Satpuda, Namdhapa, Dibang, Similipal, Satkosia Tiger Reserves, where tigers may be translocated but only if there is enough prey population exists. In such areas in situ prey population augmentation must be taken up first besides improving status of protection.

• Several Tiger Reserves in the country are infested with massive invasive and alien species. These species have encroached upon prime grasslands in these Reserves. By effectively managing such areas, grasslands can be restored which in turn will be able to accommodate more herbivores and tigers.

• Bring more areas under Project Tiger. There are several tiger rich habitats with great potential like Ratapani, Ranipur, Sohagibarua, Suhelwa, Durgawati, Karbi-Anglong, Waynad, Sunabeda, Guru Ghasi Das, Megamalai, Mhadei, Dibang,Cauveri-MM Hills and Nandhaur Wildlife Sanctuary/National Parks, which should be declared as Tiger Reserves.

• Create more inviolate space for tigers. Though, voluntary rehabilitation of people living in the core & critical tiger habitat is ongoing since the launch of Project Tiger, but the pace is too slow. Therefore, on voluntary basis, generous incentive driven aggressive efforts are needed on ground to create more inviolate space for tigers and bringing these people in the mainstream of development of the country. Much more needs to be done for consolidation of core and inclusive growth in buffer and adjoining areas by innovative financing mechanism. Village rehabilitation must be dovetailed with rural employment and all ongoing government schemes in rural areas.

• Though implementing "M-STrIPES" has been made compulsory by the NTCA, it must be ensured that its coverage is in all tiger reserves and the results are regularly analysed to support decision making by the tiger reserve management.

• Management Effectiveness Evaluation (MEE) is done independently, once in four years. Conducting MEE, internally on annual basis will help the management to improve effectiveness of the decision making.

• Poaching is still the biggest threat to tiger conservation. This calls for mandatory Security Audit of all tiger reserves on annual basis. This will immensely help in improving the protection regime and to plug in loopholes and gaps.

• Aggressive use of technology to support efforts on ground must be done. The tiger cell in the Wildlife Institute of India may be entrusted to develop protocols on use of technology in monitoring, animal, tracking, intrusion detection, limiting movement of animals, virtual fencing,

sensors to detect animal/poacher movement, e-surveillance, drones, robots, drones with night vision, drones with capacity to dart animals etc.

• India shares its tiger landscape boundaries with Nepal, Bhutan, Bangladesh and Myanmar. Status of tigers on either side will have positive or negative effects at each other. Therefore, it is an imperative to establish of Trans-border Tiger Reserves/ Protected Areas with these countries, and conduct joint monitoring and patrolling on regular basis. As a global leader in tiger conservation, India must support its neighbouring countries through inter-governmental institution like Global Tiger Forum with resources, best practices and technology.

• Tigers cannot survive in islands of Protected Areas. They need corridor for dispersal to establish their territories in the newer areas. Though corridors have been identified at macro level as a part of the all India tiger estimation, they need to be identified, managed and restored at micro level besides regular monitoring.

• Some tiger reserves in the country like Corbett, Ranathambhore, Kanha, Pench (MP), Bandhawgarh, Tadoba, Periyar, Bandipur face tremendous pressure of tourism. Large number of resorts and hotels have mushroomed in the vicinity of these tiger reserves. The

number of beds in such facilities is far greater than the cap on number of tourists allowed to visit tiger reserve based on their carrying capacity. In such high demand area, tiger safaris must be established on priority basis to ease out pressure on tiger reserves. These safaris will also help in generating much needed resources for tiger conservation, besides generating local employment.

• When the ongoing Centrally Sponsored Scheme of Project Tiger was revised in 2008 and a component of Rehabilitation of hunting tribes was included. However, no State has used funding support under this component so far . This needs greater attention of the States which will help these people in joining the mainstream of development besides weaning them away from their traditional hunting practices.

• The benefit of tiger conservation must flow to the local people who sacrifice most for the sake of its conservation. This benefit must be direct and substantial to win the support of local people in conservation. India being a heavily populated country, the conservation cannot succeed without the support of local people. Payment of ecosystem services to the locals will make them partners in tiger conservation.

• The budget allocation to the ongoing Project Tiger was enhanced substantially by the NDA Government since 2014-15. The higher allocation must continue to ensure the momentum and sustenance of the increasing tiger population in the country.

• It has been observed that conditioning of tigers to human scent, habituation to kill cattle & human, habituation to live in agricultural fields, such unusual behaviours are posing new challenge to the managers and threat to tigers, as such conditioning is leading to human-tiger conflicts. This calls for creation of Tiger Operant Conditioning Zone in selected tiger reserves. This facility is required for rewilding and deconditioning of tigers habituated for living in agricultural areas, habituated on preying domestic animals, habituated of human presence, and to make them fit to be released in the wild with proper monitoring.

• The human-tiger and other wildlife conflict is the biggest challenge before the wildlife managers, and the frontline staffs lack capacity to deal with it. This situation also causes hatred and anger against the Department and wild animals. The memory of wildlifers and conservationists are fresh with recent incidents of killing of tigress Avani in Maharashtra, killing of an old tiger by villagers in Chaltua village of Dudhwa and lynching of a tigress in Pilibhit, very recently. This calls for enhanced funding support to States for mitigation of human-wildlife conflict and massive work on capacity building on application of all modern tools & technology to deal with conflicts. The State Government of Uttar Pradesh has set an example by declaring human-wildlife conflict a Natural Disaster. Now it has become responsibility of the district administration to provide law & order support to the Forest officials to deal with the situation. This has further improved the payment of ex-gratia and compensation to the victims and their dependents. This example is worth emulating by other States.

• The ever increasing human wildlife conflicts in several parts of the country calls for creation of a National Centre for Human Wildlife Interface (NCHWI). This would be the centre to develop protocols, conduct research, and devise strategy and techniques to deal with different situations of conflict, besides building capacity of the staff and rapid response teams of States. This is also a high time to create Wildlife Rapid Action Force (WRAF) which will be highly skilled Commando like force with acumen to deal with emergency situations arising out of straying of tigers, leopards and elephants in human dominated landscape.

• There is a need to establish a national Institute/ Referral Centre for treatment, diagnostics, research & education on wildlife veterinary science on the lines of AIIMS.

What should we aim for?

For future, the task is formidable. The status of tigers outside the protected area system and linkages in the landscape (with the communities, and also between the forests) are important. This calls for reorienting the sectoral priorities in such selected landscapes keeping in mind the "inclusive/exclusive" agenda recommended by the Tiger Task Force.

Though the experts like Dr Rajesh Gopal put the carrying capacity of the country to hold 2500 to 3000 tigers, if we want to improve, we need site specific strategy.

As we are fast approaching to the year 2022 when Russia has agreed to organise the Tiger Summit again, it is a high time for GTF and GTIC to review the status of tigers across all TRCs at global level and gear up with actions on ground for achieving the shared goal of doubling the tiger numbers across its range. ●

Dr. S.P. Yadav is ADG(PT) and Member Secretary (NTCA)

POLICY WATCH

How Green Buffers Can Stop, If Not Eliminate, Zoonotic Pandemics

Photographs: Sanjay Shukla

■ By Rajesh Gopal and Mohnish Kapoor

Much has been spoken and published over the years by national governments and organisations on the importance and the need to save nature. Looking back, precious little seems to have happened to safeguard ecosystems. Going by the wildlife parlance, we dwell in our habitats --- rather micro-habitats --- which are subsets of a larger entity – the landscape. This is not a benign entity, but is subjected to environmental processes and man-made impacts. These define a landscape's dynamics and influence its subsets such as forests, rural, and urban settings. Hence, looking beyond becomes crucial for our well-being.

In the Anthropocene era, humans have left no stone unturned for materialistic gains. The Covid-19 pandemic is a case in point and a wakeup call. But then, where does the green space fit in all this?

Globally, landscapes are transforming as a result of economic geography. Such transformations have altered the natural state, leading to distortions in the ecological food-web of forested and non-forested environments. Humans must remember that biodiversity does not end in a forest or a protected area, but exists even in the ecosystems such as agriculture and plants in a city. Lakes, gardens, shelter belts are ecologically as relevant as forests.

Many zoonotic pandemics like Covid-19 can best be stopped, if not eliminated, through green buffers. The phenological cycle of plant growth in forest, rural, or urban settings harbour a plethora of life forms with intricate vector cycles, many of which we do not know. This assumes more importance in forests owing to their sylvatic cycles and ecological successions. Our compelling needs have arrested or altered such cycles at various stages, while crippling the ability of such ecosystems to perform their function (which also includes reducing the recurrence of zoonotic disease pandemics).

Though much has been stated about ecosystem functions, a lot more is required on landscape epidemiology and the role of green spaces in influencing the pandemic spread. The task requires a dispassionate commitment to ensure the centrality and sanctity of green spaces and issues related to them in forested, rural and urban settings.

In Design with Nature, Ian Mcharg articulated on many thematic areas, and also highlighted the prevalence of

disease in a non-sylvan urban locale. With the advent of GIS, cartography has become much easier, where indices of suitability and predictions can be modelled. In a country like India, a three-pronged strategy, focusing on forested, urban, and rural settings at a macro-landscape level needs to address both the prevailing altered states as well as a roadmap for future.

India's landscapes are no exception to the global phenomenon of transformation. Broadly, anthropogenic, and environmental stochastic process have resulted in three altered states of landscapes: Severe (urban), Moderate (rural-forest interface with a possibility of moderate rehabilitation, and near normal (protected areas and some forests).

The forest environ broadly falls in one or more categories, viz. protected area, community reserve, conservation reserve, reserved forests, protected forests or un-demarcated protected forests. The parcels of land contained therein are looked after by a plan of operation emanating from a management plan (protected area or a working plan). Such areas and their linkages within a landscape are "no go" areas in true sense, where no trade-off is possible. They provide the ecosystem service to the society, including maintenance of the prey, predator, pathogen, and vector cycles. No compensatory efforts worth its name would bring back the character and dynamics of floral and faunal associations inherent in such areas.

The rural locations have their dynamics of their own. The predominant land for agriculture and cash crops has eaten into the habitat of wild animals, leading to man-animal conflicts. This requires redressal at the grassroots level through village level micro-planning, and prescribing a gainful portfolio for community stewardship to safeguard nature. The remuneration or gains to rural society needs to be supported as part of "payment for ecosystem services" (PES).

Urban destinations have undergone alteration to a point of no return. Here, dreaming of a resurrection would remain a dream. Hence, the urban master plan needs to explore options for compensatory measures through retrofitting, to prevent the urban flora and fauna from gaining a pest value.

We need action portfolio through a master plan for addressing all the above altered states, which may involve restorative redevelopment, compensatory amelioration, and in-situ conservation. Such a master plan should be the baseline for any intervention. The ministry of environment, forest and climate change has an innovative format for master planning in the ecologically sensitive zone. Perhaps, an approach on similar lines at a landscape scale would harness all stakeholders through gainful portfolios. This is much needed in the present context, and as a collective responsibility becomes important in fostering green spaces at a landscape level while aiming towards sustainable development.

Dr. Rajesh Gopal , Secretary General and Mohnish Kapoor, Head, programme and partnerships, Global Tiger Forum. ●

SPOTLIGHT

Photo: Sanjay Shukla

Securing India's Tiger Habitats And Natural Assets For Preventing Future Pandemics

■ By Madhu Verma and Amit Mallick

• *Conservation of tiger bearing forests are key to building resilience from diseases, environmental and economic eventualities.*

• *While current economic growth models emphasise productivity improvements by building infrastructure, tiger reserves are colossal bedrocks of green infrastructure and ecosystem services with significant resilience and health benefits for people.*

• *A well-distributed and resilient habitat for wildlife and forest-dwellers can enhance the flow of multiple ecosystem services to economic systems thereby promoting physical, environmental and financial well-being not just among the local people but the national populace, as well, write the authors in this commentary.*

In early April, when a tigress in New York's Bronx Zoo tested positive for Covid-19, medical experts recorded the first evidence that the novel coronavirus could jump from humans to other species. The four-year-old tigress, Nadia, was suspected to have contracted the virus from an asymptomatic caretaker. Within weeks, four more tigers and three lions tested positive in the zoo. Today, in the face of multiple threats to the endangered big cats – including habitat loss, poaching, human-wildlife conflict and a growing predator-prey imbalance in the natural forests – this human-to-tiger transmission poses additional challenges.

Tigers are a keystone species at the top of the ecological pyramid, and their survival is pivotal to the wellbeing of several animals, including humans. Classified as 'Endangered' in the IUCN Red List for years (last assessed April 2014), coordinated global initiatives are now impacting a slow rise in the tiger numbers, with an estimated 3,159 individuals in its natural habitat today. India has been leading these conservation efforts, and is home to an estimated 2,967 wild tigers in its 50 tiger reserves, that is, roughly three-quarters of the world's total remaining non-captive population.

The threat of a potential virus in and around tiger reserves and other wildlife sanctuaries, could upset conservation efforts, raising concerns about feline health and deaths, endangering the intricate ecological balance and life on earth itself.

Tiger bearing forests support ecological processes that produce varied ecosystem services important for human well-being

Why tiger bearing forests matter

For centuries, the tiger has dominated the Indian psyche and celebrated in its folklore. But this is not the sole criteria of India's tiger conservation strategy – it is, in fact, an effort to counter forest fragmentation and environmental degradation, and support a symbiotic, nature-based way of life in which forests, wildlife and humans thrive.

Research shows that an adult male tiger typically commands a territory ranging from at least 20 sq km in high tiger density areas like India, to almost 900 sq km in the forests of Russia. Similarly, it demands a tiger-prey balance, with standing prey base of 400-500 ungulates per year. Unfortunately, despite varied measures, loss of habitat, declining prey base and poaching continue to plague India's forests today. To offer ecological security to the tiger and all its associated species, means to ensure continued existence of healthy forest ecosystems that are safe and non-fragmented, and offer ample area for free movement of the feline. Such a forest can have generous co-benefits ¬– most importantly, it can offer economic support to forest-dependent communities and related businesses, at large.

Green engines of economic growth

Policy options in the present times are often focused on reigniting growth in a sustainable manner. Tiger bearing forests support ecological processes that produce varied ecosystem services important for human well-being. While current economic growth models emphasise productivity improvements by building infrastructure, tiger reserves are colossal bedrocks of green infrastructure that provide fresh water and clean air, curtail disease occurrence and spread, decompose waste, store carbon, conserve soil, support local economies and are sources of many current and potential medicines. These values have significant resilience and health benefits for the people.

Thus, it was only obvious why, while inaugurating the Third Asia Ministerial Conference on Tiger Conservation in New Delhi in 2016, Prime Minister Narendra Modi drew the attention of the global community to the enormous benefits of tiger forests as "natural capital". This was the basis of a study supported by the National Tiger Conservation Authority (NTCA) and conducted in 16 tiger reserves of India, which showed that a rupee invested in tiger reserves provided 243 to 7,488 times worth of benefits to the country annually, but without receiving any recognition or payment in exchange.

Tiger bearing forests support ecological processes that produce varied ecosystem services important for human well-being.

'One-health' approach against pandemics

Today, as Covid-19 spreads across world communities, causing loss of lives to livelihoods, economic crashes and fears of existing and impending co-morbidities, it becomes even more important to understand and analyse various aspects and benefits of tiger conservation. The possibility of human-to-animal transmission of Covid-19 today, demands that the Indian authorities practise vigilance and put all its wildlife habitats and corridors – which house nearly 60% of world's tiger population – on high-alert. Additionally, securing the country's abundant natural assets could go a long way in preventing future pandemics.

While the government has promoted programmes like the Ayushman Bharat Scheme to bolster the healthcare sector, it has now become important that to adopt a 'one-health' approach to understand the interconnectedness between humans, environment and animals for purposing optimal health outcomes. Such an approach could reduce disease prevalence and minimise healthcare expenditure substantially.

Not just tiger reserves, but the entire network of 870 protected areas – comprising 104 national parks, 551 wildlife sanctuaries, 88 conservation reserves and 127 community reserves and covering 5.02% of the country's geographical area – urgently deserves attention. Tighter monitoring, empowering forest dwellers, restricting and supervising tourism in forest areas, controlling interference and encroachment by urban communities, can help secure these habitats, and facilitate health and economic wellbeing.

As an immediate response to Covid-19, educating forest communities, equipping them with knowledge and wherewithal, safety and hygiene measures, first-aid and medial support and easy connectivity to health centers, is also crucial. A well-distributed and resilient habitat for wildlife and forest-dwellers can enhance the flow of multiple ecosystem services to economic systems thereby promoting physical, environmental and financial wellbeing not just among the local people but the national populace, as well. ●

Dr. Madhu Verma, Chief Economist, Economics Centre, World Resources Institute (WRI) and Dr. Amit Mallick, IGF, NTCA, HQ, New Delhi.

SPECIES IN FOCUS

Eulophia obtusa - first ever records of buds to flowering to fruiting. Photo courtesy Fazlur Rahman and Sanjay Pathak

Rare Species Of Orchid Discovered In Dudhwa Tiger Reserve

■ By Sanjay Pathak

While we were on a routine inspection for monitoring the status of grasslands in Dudhwa Tiger Reserve Division on 30th June & 1st July, 2020, we could see some flowers blooming in the grasslands inside the Rhino Rehabilitation Area falling under the South Sonaripur range of Dudhwa Tiger Reserve Division. It was really startling for myself and my team members namely, Shri Manoj Sonkar, Dy. Director, Dudhwa Tiger Reserve Division, Dr. Mudit Gupta, Co-ordinator, WWF-India, Shri Fazlur Rehman of Katerniaghat Foundation, and my son, Yash Pathak. We could make out that the flower appears to be that of some ground orchid but we never speculated that it is such a rare species which has not been reported from our country for more than 100 years.

I thought to get it identified with the help of botanists from National Botanical Research Institute, Lucknow and Prof. S.R. Yadav, renowned taxonomist and former professor from Shivaji University, Kolhapur, who is also an honorary fellow at the National Science Academy. Before I could do that, Fazlur Rehman circulated the photograph on a Facebook group namely 'Native orchids of India' to get it identified. He immediately got a response from a person named Mohd. Sharif Hossain Sourav from Bangladesh, who is pursuing research in Germany and it was Mr. Sourav who revealed that the species of orchid discovered was Eulophia obtusa. He revealed that what you people have discovered was one of the rarest find and had been reported from Bangladesh last in the year 2014 in some agricultural field. During telephonic conversation with myself, he told me that the fruits of this species had never been photographed in past and requested me to conserve the species.

When we tried to search for more information, we could find an article published on 20th April, 2017 on Springer Nature Link, titled as 'Eulophia obtusa (Orchidaceae, Epidendroideae, Cymbideae) - an addition to the flora of Bangladesh, with notes on its ecology and conservation status' written by Md. Sharif Hossain Sourav, Department of Environmental Science and Management, North South University, Dhaka, Bangladesh, Ronald Halder of Baikal Teal Production, Dhaka, Bangladesh and Andre Schuiteman of Royal Botanic Gardens, Kew, Richmond, Surrey, UK. The first author of this article is the same person who contacted us to reveal the rarity of the species in question. No other article could be found on this species.

As per the details given in the said article, this species had been recorded previously from North India and Nepal

besides Bangladesh, where it was found in an agricultural field in the year 2008 and 2014. The total number of flowering plants was 20 but soon it got exterminated as it could not be conserved in the agricultural field. As revealed, the most recent of only three collections in the Kew Herbarium belong to that of year 1902, which is testimony of its rarity.

This species, as accounted in the said article, has been found in the seasonally waterlogged grassland in our case too. We could also find it in other grasslands of the reserve, especially in grasslands where Imperarta cylindrica and Saccharum spontaneum grasses are in abundance. The area where the species was found remains waterlogged, moist and swampy in general. This species has been reported from all the three constituents of Dudhwa Tiger Reserve, namely Dudhwa National park, Kishanpur WLS and Katerniaghat WLS. In Kishanpur Wildlife Sanctuary, we could count 47 flowering plants within 7-8 meters on both sides of forest road between grassland with naked eyes during half a km. of drive in the evening of 4th July, 2020. What is more interesting is that we could find a striking resemblance between the species reported in Bangladesh and the one which has been discovered here. The habitat and flowering period is also almost similar. These are the terrestrial, seasonally deciduous herb, bearing underground corms, leaves of which are grass like and appear with the inflorescence which is erect, bearing 10-12 flowers usually opening simultaneously and more or less evenly spaced. Flowers were found to be of 3-4 cm diameter with white sepals and petals and white tinged pink lip with numerous deeper purplish pink, branching veins. At the time of the survey, we also witnessed the fruiting of the orchid which has never been documented before.

Historically in India, it was last found in upper Gangetic plain of Pilibhit in Uttar Pradesh on 24 June 1902 by W. Bell, Mackinnon, Duthie and Inayat (Duthie 1915; Deva & Naithani,1986; Jalal et al.2008). Though unconfirmed reports of its presence had come from Assam and Nepal respectively in 2013 and 2014, yet the same needs authentication. This species was originally described from the erstwhile state of U.P., now Uttarakhand (Lindley 1833). There is an unpublished painting from 9th July 1900 in the icons collection of Kew by H. Hormusji of an orchid collected in the Raipur District of Central India (Chhattisgarh) and grown by J. Martin, which represents a taxon that is strikingly similar to the Bangladesh form of Eulophia obtusa in colour, except that it lacks the green tinge in the basal part of the lip, besides some other structural difference (Md. Sourav et al.). If this painting represents a form of this species, it might be an evidence for its considerable range extension towards the south. The news of discovery of this rare species of orchid Eulophia obtusa, after more than 100 years spread like a wildfire and got prominently highlighted in both regional and national dailies besides the electronic media.

The grasslands have been found to be the sole habitat for this species. Destruction of such uncultivated grassland will be fatal for survival of such critically endangered species and can cause local extinction of the said species. The habitat therefore, needs to be protected. ●

Sanjay Kumar Pathak , IFS, is Field Director Dudhwa Tiger Reserve and National Park.

VIRTUAL TOURISM

Tadoba 4K Live

■ By Praveen N. R.

Covid-19 has wreaked havoc in every sphere of life across the world. Tourism in general and ecotourism in particular has come to a standstill. Safari tourism in Tadoba Andhari Tiger Reserve was closed down on March 18, 2020 indefinitely. The summer months of April-May-June used attract thousands of wildlife enthusiasts. It has made the life of both nature lovers and the people depending on it for their livelihood miserable.

Under such awful conditions the management at Tadoba thought of taking the Tadoba safari experience to the people's drawing rooms. The online Safaris (pre-recorded) in the form of daily updates was launched on April 17. Videos ranging from 30 to 40 minutes were live streamed daily at 3 pm till May 4th. Thereafter, weekly updates every Friday were live streamed.

The viewers from across the world have wholeheartedly welcomed and supported this innovative activity. Over 17,000 people have subscribed to the 'tadoba4klive' YouTube channel and over 9 lakh views have been made. We have received thousands of feedbacks from over 18 countries. A total of 31 videos covering various aspects of Tadoba have been uploaded till 7th of July, 2020. ●

Praveen N. R, IFS, is Field Director Tadoba Andhari Tiger Reserve.

The St. Petersburg Declaration on Tiger Conservation

(Saint Petersburg, Russia, November 23, 2010)

We, the Heads of the Governments of the People's Republic of Bangladesh, the Kingdom of Bhutan, the Kingdom of Cambodia, the People's Republic of China, the Republic of India, the Republic of Indonesia, the Lao People's Democratic Republic, Malaysia, the Republic of the Union of Myanmar, Nepal, the Russian Federation, the Kingdom of Thailand, and the Socialist Republic of Vietnam, being custodians of the last remaining tigers in the wild, having gathered at an unprecedented International Tiger Forum in St. Petersburg, Russian Federation, from 21–24 November 2010, with the common goal of tiger conservation;

Recognize that Asia's most iconic animal faces imminent extinction in the wild. In the past century, tiger numbers have plummeted from 100,000 to below 3,500, and continue to fall. Tiger numbers and habitat have declined by 40 percent in the last decade alone, lost largely to habitat loss, poaching, the illegal wildlife trade, and human-tiger conflict. Three subspecies have already disappeared, and none of the other six is secure;

Acknowledge that the tiger is one of the important indicators of healthy ecosystems and a failure to reverse these trends will result in not only the loss of tigers but also a loss of biological diversity throughout the entire Asiatic region, together with the tangible and intangible benefits provided by these magnificent predators and the ecosystems they inhabit;

Note that whilst the conservation of the tiger is primarily a national responsibility and that increased cooperation and coordination of efforts among the tiger range countries is essential, the reversal of this crisis is additionally dependent upon financial and technical support from the international community, bearing in mind that most Tiger Range Countries are developing countries. The crisis facing the tiger has yet to receive the international attention it deserves and saving this species is a common responsibility;

Understand the role of international agreements on the conservation of biological diversity and protection of rare and endangered species, including the tiger, such as the Convention on Biological Diversity, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and the Convention on the Conservation of Migratory Species of Wild Animals;

Acknowledge the work to date of the Global Tiger Forum and encourage its revitalization and more active role;

Recall and endorse The Manifesto on Combating Wildlife Crime in Asia, adopted in Pattaya, Thailand, in April 2009; the Recommendations of the Global Tiger Workshop in Kathmandu, Nepal, October 2009; the Hua Hin Declaration on Tiger Conservation at the First Asian Ministerial Conference on Tiger Conservation (1st AMC) in Hua Hin, Thailand, January 2010; and the Work Plan of the Pre Tiger Summit in Bali, Indonesia, July 2010;

Welcome the adoption of National Tiger Recovery Priorities (NTRPs) and the Global Tiger Recovery Program (GTRP); and

Acknowledge and appreciate the presence and support of other governments, international organizations, non-governmental organizations, and other supporters of tigers.

Because it is our obligation to future generations, and because we must act now, we hereby declare the following:

Strive to double the number of wild tigers across their range by 2022 by

1. Doing everything possible to effectively manage, preserve, protect, and enhance habitats, including:
   a. Mainstreaming biodiversity conservation in planning and development processes in tiger habitat;
   b. Making critical tiger breeding habitats inviolate areas within the larger tiger conservation landscapes where no economic or commercial infrastructure development or other adverse activities are permitted; and maintaining the landscapes and creating corridors around and between them where all permitted development activities are tiger- and biodiversity-compatible;
   c. Improving protection by using systematic patrolling to safeguard tigers, their prey, and habitats; and
   d. Working collaboratively on transboundary issues, such as the uninhibited movement of tigers and the management of tiger conservation landscapes.
2. Working collaboratively to eradicate poaching, smuggling, and illegal trade of tigers, their parts, and derivatives through:
   a. Strengthened national legislation, institutions, and law enforcement to combat crime directed against tigers;
   b. Strengthened regional law enforcement activities through bilateral and multilateral arrangements such as Association of South East Asian Nations Wildlife Enforcement Network (ASEAN-WEN), South Asia Wildlife Enforcement Network (SAWEN), and the Protocol between the Government of the People's Republic of China and the Government of the Russian Federation on Tiger Protection;
   c. Strengthened international collaboration, coordination, and communication;
   d. Specialized expertise, where relevant, from international organizations including the CITES Secretariat, INTERPOL, the UN Office on Drugs and Crime, the World Bank, and the World Customs Organization (recognizing that some of these agencies may, themselves, require additional resources); and
   e. Long-term national and global programs to create awareness of the value of wild tigers and their ecosystems and thus eliminate the illicit demand for tigers and their parts.
3. Engaging with indigenous and local communities to gain their participation in biodiversity conservation, minimize negative impacts on tigers, their prey, and habitats, and reduce the incidence of human-tiger conflict by providing sustainable and alternative livelihood options through financial support, technical guidance, and other measures.
4. Increasing the effectiveness of tiger and habitat management, basing it on:
   a. The application of modern and innovative science, standards, and technologies;
   b. Regular monitoring of tigers, their prey, and habitat;
   c. Adaptive management practices; and
   d. Building capacity of institutions involved in science and training and creating a platform for interactive knowledge exchange at all levels.
5. Exploring and mobilizing domestic funding, including new financing mechanisms based on forest carbon financing including REDD+, payment for ecosystem services (PES), ecotourism, and private sector, donor, and nongovernmental organization partnerships.
6. Appealing for the commitment of international financial institutions, such as World Bank, Global Environment Facility, Asian Development Bank, bilateral and other donors and foundations, CITES Secretariat, non-governmental organizations, and other conservation partners to provide or mobilize financial and technical support to tiger conservation.
7. Looking forward to the establishment of a multi-donor trust fund or other flexible arrangements to support tiger conservation.
8. Requesting financial institutions and other partners, including the Global Tiger Initiative, to assist in identifying and establishing a mechanism to coordinate and monitor the use of the multi-donor trust fund allocated for tiger conservation and the implementation of the GTRP, including its Global Support Programs for capacity building and knowledge sharing, combating wildlife crime, demand reduction, and the GTRP progress report. In the interim, we request the Global Tiger Initiative to fulfill this role.
9. Agreeing to convene high-level meetings on a regular basis to review the progress of NTRPs and the GTRP and to help ensure continued high levels of political commitment to tiger recovery.
10. Building tiger conservation awareness by celebrating Global Tiger Day annually on 29 July.
11. Welcome and sincerely appreciate the pledges made during the Tiger Summit; we also appreciate the continued support of the Global Environment Facility, Save the Tiger Fund, Smithsonian Institution, U.S. Fish and Wildlife Service, Wildlife Conservation Society, WWF, and other partners in the Global Tiger Initiative, and welcome the participation of new ones.

By the adoption of this, the St. Petersburg Declaration, the Tiger Range Countries of the world call upon the international community to join us in turning the tide and setting the tiger on the road to recovery.

GTI Global Tiger Initiative