

BI-MONTHLY OUTREACH JOURNAL OF NATIONAL TIGER CONSERVATION AUTHORITY
GOVERNMENT OF INDIA

s t r i p e s

Volume 2 Issue 3

March-April 2011



TIGER ESTIMATION



GTRP/NTRP/ GTF

CHINA TOUR



CORE/BUFFER

MANAGEMENT



STRATEGY

**FUND RELEASE UNDER THE CENTRALLY
SPONSORED SCHEME OF PROJECT TIGER
AS ON MARCH 31, 2011** (Amount in ₹lakhs)

Tiger Reserve	States	2010-11
Nagarjunsagar	Andhra Pradesh	155.645
Namdhapa	Arunachal Pradesh	96.875
Pakke	Arunachal Pradesh	101.058
Kaziranga	Assam	1050.38
Manas	Assam	395.504
Nameri	Assam	63.588
Valmiki	Bihar	158.355
Achanakmar	Chhattisgarh	1556.085
Indravati	Chhattisgarh	50.382
Udanti-Sitanadi	Chhattisgarh	207.258
Palamau	Jharkhand	130.616
Bandipur	Karnataka	367.656
Bhadra	Karnataka	154.114
Dandeli Anshi	Karnataka	203.823
Nagarhole	Karnataka	934.466
Periyar	Kerala	209.330
Parambi Kulam	Kerala	114.130
Bandhavgarh	M.P	2292.125
Kanha	M.P	575.960
Panna	M.P	390.696
Pench	M.P	236.430
Sanjay Dubri	M.P	203.451
Satpura	M.P	264.160
Melghat	Maharashtra	2137.088
Pench	Maharashtra	102.715
Tadoba-Andheri	Maharashtra	494.887
Sahyadri	Maharashtra	54.374
Dampa	Mizoram	187.690
Satkosia	Orissa	72.834
Similipal	Orissa	742.456
Ranthambhore	Rajasthan	250.325
Sariska	Rajasthan	2118.600
KMTR	Tamil Nadu	119.270
Mudumalai	Tamil Nadu	269.792
Anamalai	Tamil Nadu	131.725
Corbett Tiger	Uttaranchal	339.945
Buxa	West Bengal	120.873
Sunderbans	West Bengal	381.610
Dudhwa	U.P	382.462
Mitigating The human -tiger Confilict (U.P)		25.000
Total		17843.73

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BI-MONTHLY OUTREACH JOURNAL OF NATIONAL TIGER CONSERVATION AUTHORITY

GOVERNMENT OF INDIA

S t r i p e s

special issue on india's tiger estimation

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Sand sculpture on Puri sea beach by artist Ranjan Kumar Ganguly



This issue carries a special report on India's country level tiger estimation. The 'snapshot' assessment, carried out once in every four years, is the second of its kind using the refined process. The recent all India tiger estimation of 2010 covers an area of 6 lakhs sq.km. which includes 46,388.22 sq.km of tiger reserves, besides other protected areas and regular forest areas. The tiger population estimate for the country has increased to 1706 (lower limit 1571, upper limit 1875) from the 2006 estimate of 1411 (lower limit 1165, upper limit 1657).

Some questions have been asked regarding the increase in tiger status despite a decline in its spatial occupancy by 20%. Here it needs to be understood that there has been a decline in tiger occupancy by 20% in peripheral and dispersal areas having low densities outside tiger reserves and tiger source populations. However, the tiger populations in Uttarakhand, Tamil Nadu, Maharashtra and Karnataka have shown an increase in tiger density resulting in an increased number. Besides the inclusion of Sundarbans, some portions of North East and parts of Maharashtra have also contributed to the increase.

It may not be out of place to present a resume of the country tiger estimation process:

The all India tiger estimation process has been refined based on a pilot study, and has been approved by the Tiger Task Force constituted by the National Board for Wildlife. This refined methodology is used since 2006 and is carried out once in four years for a 'snapshot' of the country level status of tigers, co-predators, prey and habitat. The methodology is a two stage process and is known as 'double sampling'. The first stage covers all forests in the country (over 6 lakhs sq.km.), for estimating important parameters which determine tiger occupancy and density through a eight day standardized protocol (tiger signs, prey abundance, habitat characteristics and human pressures). The second stage involves stratified sampling for estimating absolute density of tigers and their prey by camera traps. Subsequently, relationships using general linear models are developed between factors estimated in stage one and tiger densities, which permit us to estimate tiger status (densities) for areas which have not been camera trapped. The whole process consists of three phases:

- (a) Phase I involves beat level data collection from ground surveys using a standardized eight day protocol,
- (b) Phase II involves habitat characterization from satellite data, and
- (c) Phase III pertains to computation of tiger densities using camera traps.

The inputs from all the three phases facilitate development of a relationship equation to relate tiger density to habitat characters and ground survey through statistical computation.

The other features of this issue include the International Conference on Tiger Conservation and Global Tiger Recovery Programme, proceedings of the fifth General Assembly of the Global Tiger Forum, appraisal of Dampa Tiger Reserve, and strategy discussion with National/International tiger experts.

Dr Rajesh Gopal / Member-Secretary, NTCA

DHRITIMAN MUKHERJEE



A REPORT ON VISIT OF THE INDIAN DELEGATION TO CHINA FOR EXCHANGE OF GOOD PRACTICES IN TIGER AND OTHER WILDLIFE CONSERVATION



Mr. S.P. Yadav presenting publications of the NTCA to Mr Yu Changchun and meeting at SFA

In pursuance of the Protocol, on conservation of tiger, between India and China, signed on March 2, 1995 and follow up action emanating from the bilateral meeting between India and China held on 31st August to 2nd September, 2010 at Beijing, an Indian Delegation comprising of Chief Wildlife Wardens, Field Directors of Tiger Reserve, WCCB and NTCA visited China from 24th to 30th April, 2011 to study the good practices of protected area management, research and wildlife enforcement in China. The purpose of the visit was also to meet and interact with the field officials and park managers of the protected areas and institutions, besides visiting Amur tiger landscape in North-East China.

A meeting between the Indian Delegates and Officials of Hunchun Amur Tiger National Nature Reserve Administration and Hunchun Forestry Bureau was held at the Head Quarters of Hunchun Forestry Bureau.

Mr Yu Changchun, Director, Amur Tiger National Nature Reserve of Jilin Hunchun, mentioned about the old Indian civilization and presently having maximum number of tigers in the world. He underlined the success story of Jilin Province in conserving Amur tiger in last few years. He informed that Hunchun City of Jilin Province borders on China, Russia and North-Korea and the Amur Tiger Nature Reserve of Jilin Province was established in July 2005. It is the first nature reserve in China for the conservation of Amur tiger and the Amur leopard covering an area of 108,700 hectares. Reciprocating the welcome given by the Chinese counterpart, from Indian side, Mr. S.P.Yadav, DIG, NTCA extended thanks from the delegation and handed over the brochures and publications related to Project Tiger and Estimation of the Tigers 2011 carried out by WII and NTCA. It was followed by the country presentations from both sides.

CHINA TOUR REPORT

Mr Lang Jeming, Director, Department of Monitoring and Promotion in his presentation illustrated the inside story of Amur tiger conservation in the landscape. He informed that almost all the tigers were eliminated decades back due to rampant poaching in the area and some of the tigers migrated to adjoining Russian habitats resulting tigers at the verge of extinction in the landscape, as happened in adjoining North-Korean part. Perceiving the threat, the conservation initiatives like habitat conservation, mountain cleaning, protecting remaining tigers from poaching and MoU with military to jointly monitor and patrol the bordering areas, rehabilitation of villages from reserve and public awareness programmes including in Russian parts were taken. Consequently the tiger population has been restored and at present 5-7 tigers including 2 females inhabit the reserve. He also informed about the use of monitoring tool MIST in the landscape. The help of NGOs like WWF and WCS have been taken in tiger monitoring and awareness programmes. The mechanism to strengthen the bilateral coordination with USSR in conserving Amur tigers have been established by signing of minutes of meetings by concerned ministers of the countries, informed by the official. He also highlighted the issues and present needs relating to cattle compensation mechanism, consolidation of ecological corridors, monitoring of tigers outside reserve, scientific research and capacity building to buttress the ongoing protection and conservation programme in the landscape.

On behalf of Indian delegation Mr. S.P. Yadav, DIG, National Tiger Conservation Authority (NTCA) gave an illustrative presentation on the status of tigers in the country. He also highlighted India's commitment in tiger conservation and various initiatives undertaken by the NTCA in this field.

Some of the best and lead practices adopted in the country including re-introduction of tigers in Sariska and Panna Tiger Reserves, mainstreaming tiger conservation outside protected areas, tiger conservation plan, tiger conservation foundation, special tiger protection force, rehabilitation of villages and creation of inviolate tiger habitats, tiger estimation by camera capture and recapture method and double sampling, web based tiger mortality data gathering, monitoring effective evaluation of tiger reserves by independent experts and use of radio-telemetry, M-STRIPES and "e-Eye" tools for protection and monitoring were also discussed by Mr. Yadav. The Chinese authorities were appreciative about the successful re-introduction efforts of the country. Mr. Yadav invited Chinese authority to visit India to study



ANANDA BANERJEE

the said best practices in the field. He also extended congratulations to the Chinese authorities for their efforts in re-building the Amur tiger population in Jilin Hunchun Tiger Nature Reserve.

The delegates visited Jilin Hunchun Amur Tiger Nature Reserve landscape. The area was about 80 km away from Hunchun city. The Chinese authorities accompanied the delegation and shared information relating to administration, management and conservation of the Amur tigers in the reserve. The snow clad rolling mountains along with international border of Russia is guarded by Chinese military which play an important role in protection and monitoring of tigers. The visit was useful in understanding the Siberian tiger landscape, which is one of the internationally endangered species and under first class protection along with Amur leopard in China.

The delegates also visited Yanbian area which is tri-junction of China, DPR Korea and Russia. The landscape is unique having hilly terrain with desert at foothills. The area is part of erstwhile contiguous landscape of Amur tiger extending from Russia to North Korea through China. At present no tiger is reported in the North Korea.

VISIT TO HARBIN: COLLEGE OF WILDLIFE RESOURCE IN NORTHEAST FORESTRY UNIVERSITY AND SIBERIAN TIGER PARK

The Siberian tiger park has a population of 500 Siberian tigers in captivity. The authorities of the park showed us the facilities available in the park including enclosures, hospitals, library and documentation

centre and discussed on the management practices adopted for captivity and breeding of Siberian tiger population for conservation of gene pool and development of best provenance.

After the visit of the park, a discussion was held on the objective and long term strategy in captive breeding programme of tigers in China. They clarified that as per the law there is complete prohibition on the use of tiger parts in Traditional Chinese Medicine and the country is not encouraging such practice keeping in view the global demand and need of hour in conserving tigers.

College of Wildlife Resource in Northeast Forest University. The delegates visited SFA Detecting Centre of Wildlife and studied the efforts being made by the China in wildlife research, forensic and capacity building. From Chinese side Mr Daniel Xu and Professor Haiyi Sun gave presentation on activities undertaken by the SFA and NEFU in wildlife conservation including tigers. Professor Sun threw light on mechanism of monitoring the wild Siberian tiger population in Heilongjiang province. Mr. S. P. Yadav, DIG, NTCA presented the successful conservation initiatives in protection and conservation of wild tigers in the country. He also underlined the need of more regional cooperation and joint efforts in the field of wildlife research and capacity building between the two countries. He invited the Chinese officials to visit Wildlife Institute of India and to study the scientific studies carried out in the field of tiger conservation including monitoring and estimation of tiger population in

OUTCOME OF THE VISIT/ RECOMMENDATIONS:

- Both countries may benefit from knowledge and research on genetics of tigers and forensic and through exchange visit of officers/ scientists.
- Looking into the success of MOU between the Wildlife Enforcement Authorities of China and their Army for reporting presence/ movement/ kills of tiger besides anti poaching activities, the same may be done by the NTCA with SSB, BSF and Assam Rifles, specially in areas bordering to Nepal, Myanmar, Bhutan and Bangladesh.
- The Fur collection and Identification Centre of SFA at NEFU is having a large number of samples of most of the animals found in the South-East Asia and South Asia. There is great possibility of exchange of technical know how between both countries involving WII and WCCB.
- There is a need for joint sensitization meeting of border agencies of both countries on illegal trade of wildlife and their body parts.
- The Chinese side may visit India, to learn more about the successful tiger & other prey species, reintroduction and rehabilitation.
- The Chinese side may visit India to see and experience the landscape level management of tiger reserves with core-buffer and corridor strategy.
- As emanated during the meeting, the Chinese side appears to be positive on creation of the South Asia Wildlife Enforcement Network (SAWEN) and willing to participate in the network. India may support inviting the People's Republic of China as 'Observer' in the meetings of the South Asia Wildlife Enforcement Network (SAWEN).

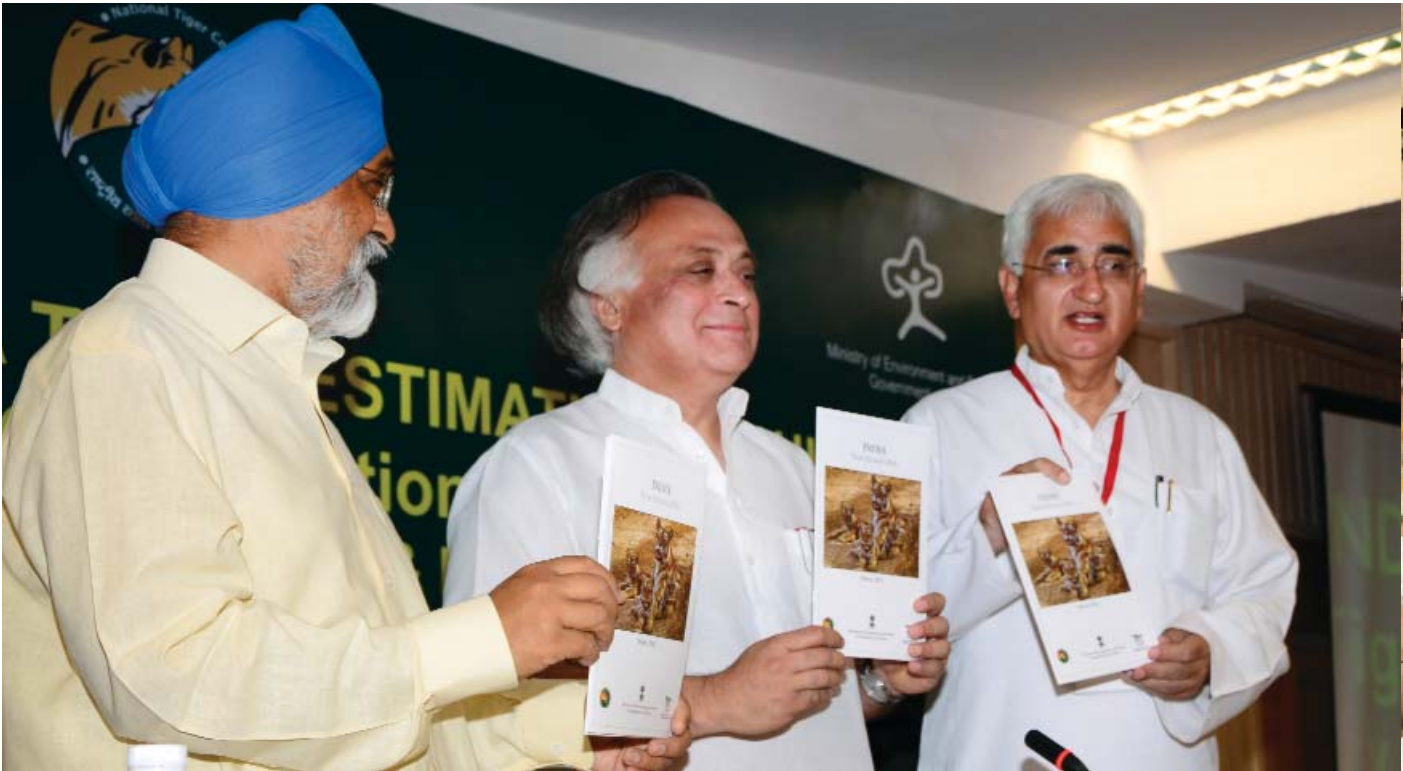
SUGGESTIONS TO THE SFA OF PRC:

- The prey population appears to be low in the Hunchun Nature Reserve, efforts may be made for improvement in the habitat and in situ build up of the prey population, assisted by their reintroduction.
- The SFA may consider implementing the core-buffer-corridor strategy for tiger conservation.
- Reintroduction of tiger in wild may be taken up on priority
- The frozen body parts of tiger may be destroyed to ensure that they are not used for consumptive use.
- The SFA/CITES Management Authority may share information on seizures of body parts of tiger and other wildlife, periodically with India.

various landscapes. The delegates also visited the Fur collection and identification centre and experience the furs of various mammals including big cats.

The delegates flew from Harbin to Beijing and visited State Forestry Administration office at Beijing. The meeting was headed by Mr Weisheng Wang from Chinese side along with his colleagues including Mr Wan Zeming and Professor Shi Kun and Mr. Yu Yue. Mr Wang welcomed the Indian delegates and requested for informal discussion on the issues relating to tiger protection and conservation between two countries. From Indian side the discussion was coordinated by Mr. S. P. Yadav along with Dr. Adarsh Swaika, First Secretary, Indian Embassy at China. Various issues relating to policy in tiger conservation in China and long term objective of captive breeding of Siberian tiger in China were clarified by Chinese officials. On the issues relating to wildlife crime and illegal trade of tigers and smuggling across the border Mr Wan Zeming agreed on the joint initiatives and information flow between two countries. Vital inputs from other Indian delegates including Mr Pabla, Mr Chandola and Mrs Rina Mitra were given during the discussion. The success story of re-introduction of tigers in Panna Tiger Reserves was presented by the Field Director, Panna Tiger Reserve. The Chinese authorities wanted to know the strategy of the country to win the support of villagers adjoining to Protected Areas while carrying out such exercise. The Chinese authorities were willing to study the Habitat restoration policy in India for re-introduction of South China Tigers. On joining the Global Tiger Forum, Mr Wang informed that it is under active consideration of the Government.

INDIA'S TIGER



Montek Singh Ahluwalia - Deputy Chairman, Planning Commission, Jairam Ramesh - Minister for Environment and Forests and Salman Khurshid - Minister for Water Resources and Ministry of Minority Affairs releasing the India Tiger Estimate report in New Delhi

The All India Tiger Estimation exercise is one of the most crucial components of our national tiger conservation efforts. Since 2006, this monitoring exercise is being undertaken every four years. This report presents the results of the 2010 National Tiger Assessment, undertaken through a best-in-class scientific process. This presents an estimate of India's current tiger population and a broader assessment of our tiger landscapes. This monitoring exercise was carried out between December 2009 and December 2010. The three phases of the tiger estimation procedure are as follows:

Phase 1: Field data collected at the beat-level (i.e. the primary patrolling unit) by trained personnel using a standardised protocol.

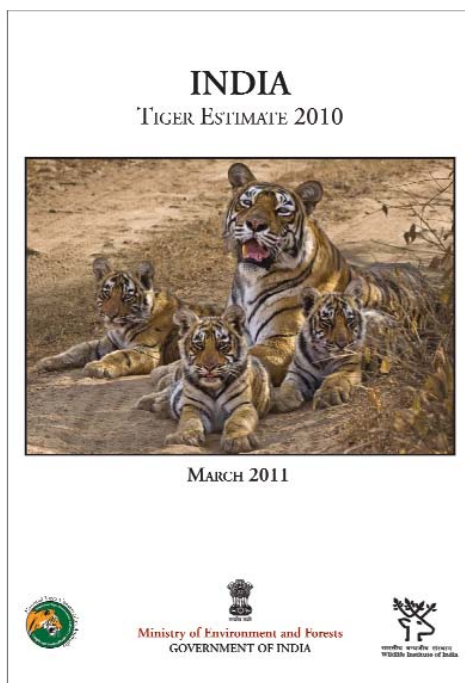
Phase 2: Analysis of habitat status of tiger forests using satellite data.

Phase 3: Camera trapping was the primary method used, where individual tigers were identified from photographs based on their unique stripe patterns.

This information was analysed using a well established scientific framework. Camera trapping was carried out by teams of wildlife biologists and local forest personnel.

Based on the tiger numbers recorded in sampled sites, an estimate for other contiguous tiger-occupied landscapes, was made. For this, additional information such as tiger signs, prey availability, habitat conditions and human disturbance was used. Thus, the final estimates provide a comprehensive and statistically robust result for the whole country.

ESTIMATION



SALIENT FEATURES OF 2010 ASSESSMENT

- Forest personnel involved in data collection: ~4,76,000
- Number of forest beats sampled in Phase I: 29,772
- Total distance walked in Phase I: ~6,25,000 km
- More than 27,300 man-days of researchers
- Total camera traps used: ~800
- Total area camera-trapped: ~10,500 sq. km.
- Number of individual tigers camera trapped: 550
- Total cost: Rs. 9.1 crore

TIGER POPULATION ESTIMATES

The same scientifically robust methods were consistently used in 2006 and 2010. This enabled comparison of results from both estimation exercises and in understanding the trend in tiger numbers. The results were collated for the larger landscapes within which individual tiger reserves fall. The Tables on the following page provide detailed information of these landscape complexes.

**INNOVATIONS
IN 2010 NATIONAL
TIGER ASSESSMENT**

The 2010 National Tiger Assessment has several innovations over previous assessments. These include: Partnerships with civil society organizations such as Wildlife Trust of India, Aaranyak, and World Wildlife Fund for Nature-India. Additional technical expertise from Centre for Cellular and Molecular Biology (CCMB). Local communities involved in data collection and analysis. Genetic analysis to estimate tiger populations from faecal samples. Along with tigers, co-predators, prey, and habitat quality assessed. Pioneering attempt to estimate tiger populations in Sunderbans Tiger Reserve (West Bengal) using satellite telemetry and sign surveys. First estimation of tiger population in Sahyadri Tiger Reserve (Maharashtra).

**THE EXISTING 39
TIGER RESERVES
REPRESENT
AROUND ONE-
THIRD OF OUR
HIGH DENSITY
FOREST AREA.**

**NEW FINDINGS OF
2010 NATIONAL TIGER
ASSESSMENT**

Most tiger source sites continue to maintain viable tiger populations. Evidence of new areas populated by tigers, e.g. Kuno-Palpur Wildlife Sanctuary and Shivpuri National Park in Madhya Pradesh. New methodology for estimating population in Sunderbans.

Table 1: Population Estimate of Tigers in 2006 and 2010

Landscape Complex	Tiger Estimate (2006)			Tiger Estimate (2010)		
	Lower limit ²	Population estimate ¹	Upper limit ²	Lower limit ²	Population estimate ¹	Upper limit ²
Shivalik-Gangetic Plains	259	297	335	320	353	388
Central India and Eastern Ghats	486	601	718	569	601	651
Western Ghats	336	412	487	500	534	568
North East Hills and Brahmaputra Flood Plains	84	100	118	118	148 ³	178
Sunderbans	Not assessed			64	70	90
Total	1165	1411	1657	1571	1706	1875

¹ Population estimate is a reliable statistical estimate of the tiger population number.
² The numbers in the "Upper limit" and "Lower limit" column show the range of these estimates.
³ Excluding the minimum population estimate of Buxa Tiger Reserve (12 tigers) based on genetic analysis conducted by the Centre for Cellular and Molecular Biology (CCMB).

Table 2: Trends in Tiger Populations between 2006 and 2010

Landscape complex	Increase	Stable	Decrease
Shivalik-Gangetic Plains	Uttarakhand	Bihar, Uttar Pradesh	-
Central Indian and Eastern Ghats	Maharashtra	Chattisgarh, Jharkhand, Rajasthan, Orissa	Madhya Pradesh, Andhra Pradesh
North East Hills and Brahmaputra Flood Plains*	Assam	Mizoram, North West Bengal	-
Western Ghats	Tamil Nadu, Karnataka	Kerala	-

* Phase I data collection is ongoing in parts of Arunachal Pradesh



Camera trap photographs of 2010 National Tiger Assessment



Moyar Segur, Tamil Nadu



Tadoba Tiger Reserve, Maharashtra



Bori-Satpura Tiger Reserve, Madhya Pradesh



Bandhavgarh Tiger Reserve, Madhya Pradesh

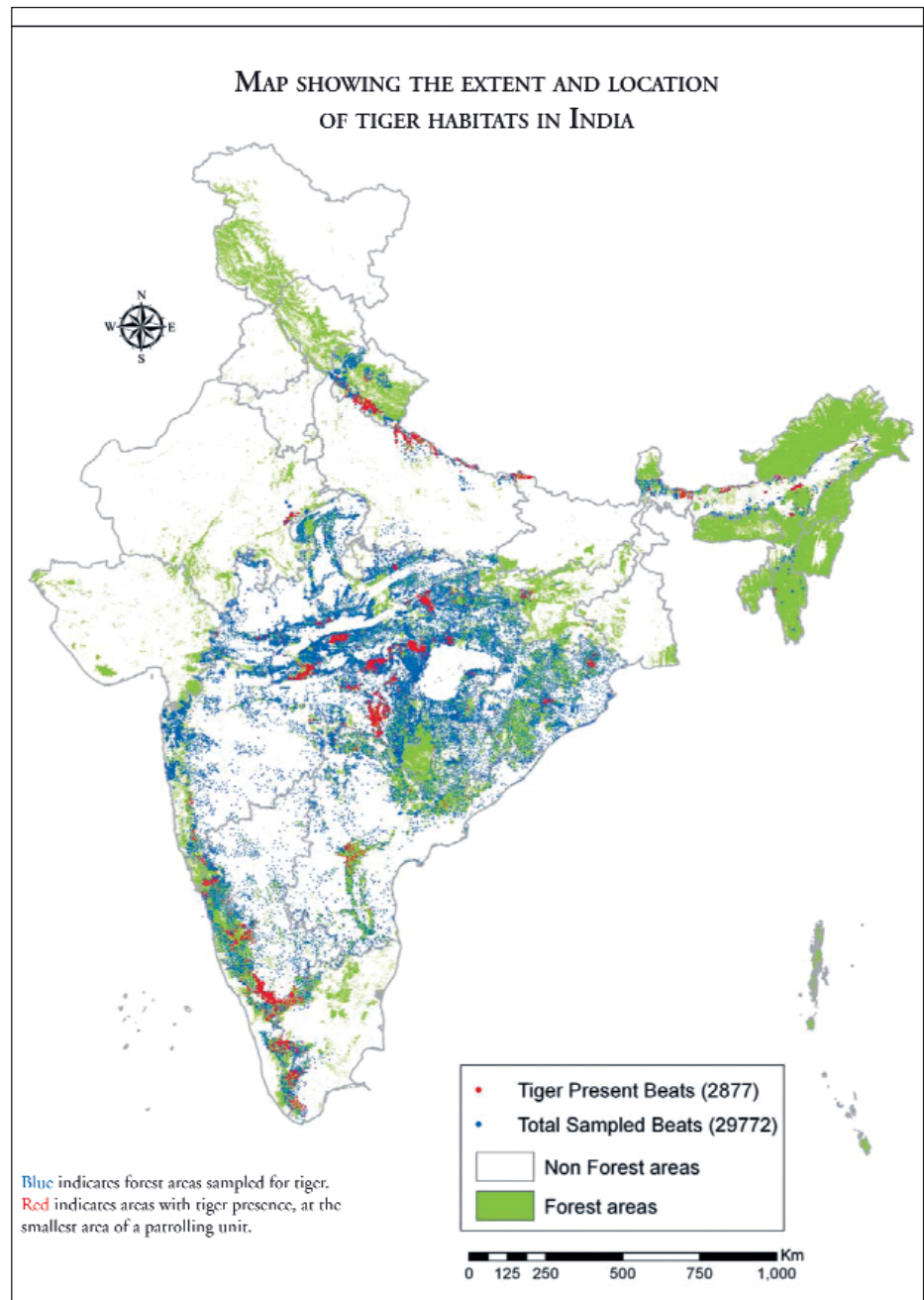


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BARITA SHARMA

Scientific robustness is the most important feature of the 2010 All India Tiger Population Estimation exercise. This holistic assessment uses tiger as a flagship species to assess status of co-predators, prey and habitat. The positive trends in tiger population estimates in source sites are encouraging. The fact that better protected tiger source sites have maintained viable tiger populations underscores the importance of strong managerial support. However, the area occupied by tigers outside protected areas has gone down considerably. This highlights the need for securing corridors for tigers to move between source sites. Five new Tiger Reserves have been given in principle approval in 2010 to provide an impetus to our national tiger conservation efforts. With the right support from the Government and citizens, we are confident that this positive trend will continue.

MORE THAN 350 RIVERS ORIGINATE FROM TIGER RESERVES. TIGER RESERVES ALSO SEQUESTER CARBON, PROVIDE OXYGEN AND SLOWLY RELEASE GROUND WATER TO REGULATE FLOODS.



International Conference on Tiger Conservation and Global workshop on implementation of the Global Tiger Recovery Program (GTRP)

March 28 - 29, 2011, Vigyan Bhavan, New Delhi



Dr Y V Jhala explaining the tiger estimation methodology

In his welcome address by Dr Rajesh Gopal said that in the 39 tiger reserves in India spread across 17 States the estimation of tigers were done in a method involving double sampling and using capture - recapture technique. Social dynamics of tigers revolve around breeding females, hence counting them is important. The core/critical tiger habitats have already been notified by 16 out of 17 tiger States. Dr Gopal thanked the Planning Commission for support and mentioned that the success for tiger conservation depends on protecting source populations and corridors. However, he said that there are several threats, and the most important being development

pressures, there is a need for a balance between development and conservation. He also thanked Wildlife Institute of India (WII), World Wide Fund for Nature (WWF), Wildlife Trust of India (WTI), Aaranyak and Centre for Cellular and Molecular Biology (CCMB) for assisting in the recent tiger estimation.

Dr Y V Jhala from WII explained the tiger estimation results in the presence of Dr Montek Singh Ahluwalia - Deputy Chairman, Planning Commission, Mr Jairam Ramesh - Minister for Environment and Forests, Mr Salman Kursheed - Minister for Water Resources and Ministry of Minority Affairs and Dr Rajesh Gopal. The difference between 2006 and 2010 was that large



number of NGO partners were involved this time in collecting the data. For example in the Sundarbans, 14 different NGOs were involved in data collection. He stressed that monitoring on a large, country wide scale, is a compromise between logistical constraints and science. This is particularly true with tigers as this is like counting needles in a hay stack. He said the tigers occupy huge landscapes, are cryptic and it is believed that if a tiger is seen once, it has been seen ten times. Hundreds of trained wildlife guards are required to cover vast parts of India to do a rigorous scientific estimation of tigers and use camera trap mark recapture.

He said that double sampling approach was adopted for estimating tigers and sign sampling was also done for tigers and prey species. Forests were at first sampled along transects, each of which was walked at least three times. Second level of sampling was done by trained biologists and camera trapping carried out, whereas the third level involved calculation of indices. This is an unprecedented feat in the whole world. There were over 70,000 camera trap nights involved, and the technique of camera trapping was adopted from the one first developed by Dr Ullas Karanth.

He gave statistics on India's tiger population. The population in Western Ghats showed an increasing trend. Sharavathy Valley-Anshi-Dandeli population is 36 - 42 tigers. Nagarahole- Mudumalai - Wayanaad complex presently holds about 350-411 tigers in a landscape that is 9000 sq. km. big, which is probably the single largest tiger population in India.

Parambikulam - Indira Gandhi has about 32-35 tigers and KMTR-Periyar complex has 36-40 tigers. In central India, losses were significant in terms of occupancy as well as numbers particularly in northern Andhra Pradesh areas of Adilabad, Khammam, Karim Nagar, E.Godavari and Vishakapatnam, Madhya Pradesh areas of Hosangabad-Betul belt between Satpuda and Melghat, northern banks of Narmada and to some extent in the landscape around Kanha. Maharashtra gained about 20-22 tigers and the Tadoba landscape population is now between 60-70. In the Terai Shiwalik complex, numbers in Corbett has been constant, the range being 195 and 239 in the Corbett Landscape including Ramnagar and Haldwani Forest Divisions. Rajaji and Dudhwa have shown stable populations. The Valmiki Tiger Reserve also showed an upward trend in tiger numbers. In northeastern India, Kaziranga has more than 100 tigers and is the

Session 1: Status of the tigers in Indian states

Session 2: Best practices in tiger conservation - the Indian experience from the frontlines

Session 3: Conservation & Economic development - the challenges and the way forward.

Session 4: Implementing the GTRP/ NTRP

Session 5: Role of the International/ national partners

Session 6: Monitoring the GTRP

main source for this region. Manas showed very poor density. Sunderbans posed a great challenge in tiger population estimation - mark recapture and home range estimate has been done here. 5 tigers were radio collared with iridium satellite collars and managed to get data from 4 of these. One of these crossed into Bangladesh and gave data for 3 months after crossing over. A density of 4.3 tigers/ 100 sq. km. was found with the range being 64-90 tigers (for Indian Sunderbans).

For constant monitoring, Corbett Tiger Reserve was selected where a 500 sq. km. area was sampled and the tiger numbers has been constant there between 2006 and 2010.

Salient features of this estimation has been the following -

- a) 1571-1875 adult tigers of age above 1.5 years;
- b) 12% increase in the tiger numbers in the areas estimated in 2006;
- c) New areas assessed include Sunderbans, parts of Maharashtra, Uttarakhand and Assam;
- d) There has been a decline in tiger occupancy from 93,600 to 72,800 sq. km. which is alarming. Losses are mostly from outside of Protected Areas resulting in isolation of source populations;
- e) There is a need for conserving habitats along the corridors for long term viability of source populations;
- f) Most of the source populations are stable;
- g) Some populations outside the Protected Areas, like Moyar - Sigur - Satyamangalam in southern India, Ramnagar in Uttarakhand and Pilibhit in Uttar Pradesh are increasing; and
- h) There is a cause of concern as well. The increase in tiger populations in high human dominated areas as seen around Corbett, Ranthambore, Tadoba, Bandhavgarh and Bor, has increased human tiger conflict. Policy and management strategies for mitigating this conflict are essential for continued survival of these tiger populations.

Mr Jairam Ramesh, said the number 1411 has gone up to 1636, leaving aside the estimate from Sunderbans which was not covered during the last phase. What is important that 30% of the estimated tigers are outside the 39 Tiger Reserves, and we don't have a strategy to tackle these tiger corridors which are under threat.

The minister said that the tiger is facing threats from poachers, international wildlife trade network, and mining and real estate mafia. The development dynamics and requirement are not matters of dispute, and the Government has to make some development choices. However, at the same time many Tiger Reserves are threatened by coal mining. Environmentalists say that nuclear and hydropower are bad, which is not true. There is a need to find a way to meet the growing appetite for energy. He also suggested that the Planning Commission will have to convince the states, keeping in mind the question if India can afford the planned 9% growth that will result in large scale degradation of forests. He mentioned some examples of development that is threatening tiger or other wildlife, saying that the Ken - Betwa river linking project will submerge good parts of Panna Tiger Reserve; power projects in Bhutan that India is developing will completely destroy Buxa; irrigation projects in Jharkhand are damaging the remaining wildlife habitats of the state; and hydropower in Arunachal Pradesh also threatens biodiversity. The Minister expressed satisfaction saying that in terms of tiger conservation, the Terai region and Maharashtra are doing well; northeastern India is not doing so well like Central India where the threats are imminent. Growth agenda is essential, however, it has to be struck a balance with the environment. He requested the Planning Commission to increase the budget for NTCA, which is required for relocating villages from the Tiger Reserves. He also mentioned that there is a need for bringing decentralization in tiger conservation and that NTCA's first office outside Delhi will be in Nagpur.

PROCEEDINGS OF THE FIFTH GENERAL ASSEMBLY OF THE GLOBAL TIGER FORUM



The Fifth General Assembly of the Global Tiger Forum (GTF) was held at Vigyan Bhawan, New Delhi, India, on the 30th of March 2011. The sessions were chaired by Mr Krishna Prasad Acharya, Director General, Department of National Parks and Wildlife Conservation, as Chair country of the Global Tiger Forum. In all 70 distinguished delegates and observers participated in the Assembly.

In his opening address, Mr Krishna Prasad Acharya, Director General, Department of National Parks and Wildlife Conservation, Government of Nepal stated that Nepal chaired the Global Tiger Forum for six years, after being elected in the 3rd General Assembly of GTF held in 2004 at Hanoi, Vietnam. He thanked all the members for the support rendered to Nepal as Chair of the Forum during these years, while stating that the GTF would play a vital role in strengthening the cause.

Dr Rajesh Gopal, Secretary General, GTF, welcomed the delegates and observers while thanking Nepal for Chairing the Assembly. He further thanked the Core Working Group of the GTF for

assisting him in carrying forward the objectives of the GTF. He stated that efforts are on to build up the profile of the GTF and a new governance structure would be discussed in the Assembly. He further stated that the Government of India has agreed to donate an amount of US\$2,22,222 to the GTF in addition to the Development Grant Facility (DGF) from the Global Tiger Initiative of the World Bank. This would enable the GTF to assist the member tiger range countries in monitoring the Global Tiger Recovery Programme (GTRP). He also acknowledged the encouragement and support given by Mr S.C. Dey, former Secretary General of GTF. He further added that the GTF was established in 1994, and presently there are only seven members from tiger range countries, one member from non-tiger range countries, three members from International NGOs and seven members from National NGOs. He informed that the membership of the Forum open to all tiger range countries, non-tiger range countries, International NGOs and National NGOs, for strengthening the GTF in achieving its objectives.

The following AGENDAs were discussed in the General Assembly

- 1: APPROVAL OF NEW MEMBERS
- 2: STATUS OF MEMBERSHIP OF GTF
- 3: BUDGET ESTIMATES FOR 2011, 2012 & 2013
- 4: APPROVAL OF PROPOSED NEW GOVERNANCE STRUCTURE OF GTF
- 5: AMENDMENTS TO THE STATUTES AND REGULATIONS OF GTF
- 6: RELATIONSHIP OF GTF & GTI
- 7: DEMAND REDUCTION FOR TIGER PARTS AND PRODUCTS
- 8: HOLDING OF THE NEXT GENERAL ASSEMBLY OF GTF, VENUE AND DATES
- 9: ELECTION OF THE CHAIRPERSON AND MEMBERS OF THE EXECUTIVE COMMITTEE
- 10: ANY OTHER BUSINESS WITH THE PERMISSION OF THE CHAIR

A RAPID APPRAISAL OF DAMPA TIGER RESERVE, MIZORAM

M. Firoz Ahmed and Bibhab Kumar Talukdar



Forest staffs on duty in Dampa TR

The Dampa Tiger Reserve in Mizoram is one of the important landscapes in the Indo-Bangladesh border with contiguous forests in both the countries that could be an ideal site for transboundary conservation of flora and fauna that facilitates migration of species across the border. Dampa Tiger Reserve is situated in Mamit district of the western part of Mizoram along the international border with Bangladesh at 127 Km from the capital Aizawl. It is the largest sanctuary of the State notified during 1989 and was declared as Project Tiger during 1994. It covers a core area of 500 Sq.km and a buffer area of 876 sq km.

The Dampa TR was categorized as poor by the earlier studies carried out by the Wildlife Institute of

India and NTCA. Camera trapping exercise in the TR could find other salient cat species like Clouded Leopard, Leopard, leopard cat, etc but so far failed to get tiger trapped in those cameras. However the landscape having contiguous forests in neighbouring Bangladesh is a potential site for overall biodiversity conservation and possibilities of unearthing new species of flora and fauna is very high as the TR was not explored scientifically to document its diversity in life-forms. To find out the current state of the tiger reserve, the NTCA has formed an appraisal team comprising of the above mentioned team members authored this report.

We visited Dampa TR from 31 August to 3

APPRAISAL

September 2009. Dr. Aparajita Dutta, the third members of the appraisal team could not visit Dampa TR due to pre-occupation. The team is of the opinion that overall infra-structure of Dampa TR needs to be improved to cater the need of regular patrol and protect the sanctity of the TR. The number of permanent staffs employed by the Government of Mizoram is not enough to effectively patrol and manage the TR. One of the major conflicts in conservation could be the proposal from Border Security Force to set up Border Outpost (BOP) and patrolling concrete road with fencing within the TR boundary along the Indo-Bangladesh border. The appraisal team feels that if the BOP and concrete road and fence are constructed, the movement of animals across the border to use the suitable forest areas for

ecological needs of the species concerned would vastly reduce if not completely stopped. This could hamper conservation of tiger and other key species in Dampa TR and if migration of species is stopped due to the construction of BOP and concrete patrolling road and

fence within the TR, and this could attract some sort disrespecting the Conservation of Migratory Species at global level. The team is of the opinion that any patrolling road and fence within the TR should not be encouraged and at least no concrete road and fence should be allowed within the TR. If for high security reasons, the establishment of BOP is essential for the security of the country, a joint and formal patrolling strategy by BSF and Forest staff should be encouraged under the leadership of the Field Director of Dampa TR and the DIG-BSF of the region.

Landscape of Dampa TR and far away forests of Bangladesh. Interaction with local villagers and EDC in Dampa TR. Border Road and fence work progress along Mizoram-Bangladesh Border and A typical anti-poaching camp in Dampa TR



SUMMARY RECORD OF THE STRATEGY DISCUSSION ON TIGER CONSERVATION HELD WITH NATIONAL / INTERNATIONAL EXPERTS, SCIENTISTS AND FIELD OFFICERS UNDER THE CHAIRMANSHIP OF THE MINISTER FOR ENVIRONMENT AND FORESTS

A strategy discussion relating to tiger conservation was held with national/international experts, scientists and field officers under the Chairmanship of the Minister for Environment and Forests on 7.3.2011 at the India Habitat Centre, New Delhi. The list of participants is at Annexure-I.

The Chairman welcomed the participants and initiated the discussion. The Member Secretary, National Tiger Conservation Authority updated the participants on the initiatives taken by the Government of India for tiger conservation. This was followed by discussion with international / national experts, scientists and field managers.

Dr. George Schaller highlighted that India is fortunate to have wild tigers and has a tremendous opportunity to protect them. He stressed the need for protection against poaching and preserving the tiger habitats, besides paying the local people for ecosystem services. Dr. Alan Rabinowitz highlighted the need for corridor connectivity, besides suggesting the formation of a tiger advisory group comprising of national / international experts.

The participants and field managers deliberated at length on various issues and the Chairman wrapped up the discussion with the following action points:

1. Securing transboundary cooperation on tiger conservation with neighbouring tiger range countries like Bangladesh, Myanmar and Bhutan with the involvement of international experts.
2. Finalising a strategy for protecting the tiger population (30% of the wild tigers in India) outside the tiger reserves.
3. Carrying out a 'gap evaluation' of the 39 tiger reserves relating to space as per scientific norms.
4. Availing the funds from CAMPA for extension of tiger habitat through afforestation.
5. Ascertaining the State-wise status on the creation of Tiger Conservation Foundation and pursuing the matter with respective States.
6. Creating a "knowledge pool" at the Wildlife Institute of India comprising of national and international experts.

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I, Inder Mohan Singh Kathuria, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Date; April 30, 2011

Signature of Publisher

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LIST OF TIGER RESERVES, WHERE BOTH CORE AND BUFFER AREAS, HAVE BEEN NOTIFIED UNDER THE WILDLIFE (PROTECTION) ACT, 1972 AS AMENDED IN 2006 (AS ON 20.04.2011)

Year of creation	Name of Tiger Reserve	State	Area of the core/ critical tiger habitat	Area of the buffer/ peripheral	Total area (In Sq. Kms.)
1973-74	Bandipur	Karnataka	872.24 (20.12.2007)	584.06 (31.8.2008)	1456.3
1973-74	Corbett	Uttarakhand	821.99 (24.12.2007)	466.32 (26.2.2010)	1288.31
1973-74	Kanha	Madhya Pradesh	917.43 (24.12.2007)	1134.361 (2.10.2010)	2051.791
1973-74	Manas	Assam	840.04 (20-12-2007)	2310.88 (30.5.2008)	3150.92
1973-74	Melghat	Maharashtra	1500.49 (27.12.2007)	1268.03 (29.9.2010)	2768.52
1973-74	Similipal	Orissa	1194.75 (31.12.2007)	1555.25 (31.12.2007)	2750.00
1973-74	Sunderbans	West Bengal	1699.62 (18.12.2007)	885.27 (17.20.2009)	2584.89
1982-83	Buxa	West Bengal	390.5813 (18.12.2007)	367.3225 (6.8.2009)	757.9038
1982-83	Indravati	Chhattisgarh	1258.37 (20.2.2009)	1540.70 (20.2.2009)	2799.07
1992-93	Pench	Madhya Pradesh	411.33 (24.12.2007)	768.30225 (5.10.2010)	1179.63225
1993-94	Tadoba-Andheri	Maharashtra	625.82 (27.12.2007)	1101.7711 (5.5.2010)	1727.5911
1993-94	Bandhavgarh	Madhya Pradesh	716.903 (24.12.2007)	820.03509 (27.10.2010)	1536.938
1998-99	Pench	Maharashtra	257.26 (27.12.2007)	483.96 (29.9.2010)	741.22
1998-99	Bhadra	Karnataka	492.46 (20.12.2007)	571.83 (29.1.2011)	1064.29
1999-2000	Satpura	Madhya Pradesh	1339.264 (24.12.2007)	794.04397 (3.1.2011)	2133.30797
1999-2000	Nameri	Assam	200 (20-12-2007)	144 (30.05.2008)	344
2008-2009	Udanti-Sitanadi	Chattisgarh	851.09 (20.2.2009)	991.45 (20.2.2009)	1842.54
2008-2009	Kaziranga	Assam	625.58 (20-12-2007)	548 (3.8.2007)	1173.58
2008-2009	Achanakmar	Chattisgarh	626.195 (20.2.2009)	287.822 (20.2.2009)	914.017
2008-2009	Dandeli-Anshi	Karnataka	814.884 (20.12.2007)	282.63 (1.9.2010)	1097.514
2008-2009	Parambikulam	Kerala	390.89 (16.12.2009)	252.772 (17.12.2009)	643.662
2008-09	Sanjay-Dubri	Madhya Pradesh	812.571 (23.2.2011)	861.931 (7.2.2011)	1674.502