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TRUMPET

PROJECT ELEPHANT DIVISION
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE 2020



Project Elephant Division & Elephant Cell

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PROJECT ELEPHANT DIVISION
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE 2020





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मन्त्री
पर्यावरण, वन एवं जलवायु परिवर्तन
और
श्रम एवं रोज़गार
भारत सरकार



MINISTER
ENVIRONMENT, FOREST AND CLIMATE CHANGE
AND
LABOUR AND EMPLOYMENT
GOVERNMENT OF INDIA

भूपेन्द्र यादव

BHUPENDER YADAV



MESSAGE

For centuries, India has regarded the elephants as its cultural symbol corroborating it as sacred symbols of peace, mental strength and power. India has persistently been working towards long term conservation of the species by maintaining habitat, significantly reducing existing and contiguous threats, and building support for conservation of elephant population and its habitat. Of the 40,000 to 50,000 Asian elephants left in the continent, India holds a stronghold of around 30,000 elephants in the wild.

Concern for the threat to the elephant led to the formation in 1992 of the Government backed "Project Elephant" aiming to preserve habitat and establish Elephant Reserves and Corridors, address human-elephant conflict issues and improve the welfare of domesticated elephants. The country has done exceptionally well in terms of conserving the species through establishment of 30 Elephant Reserves covering over 65,000 sq.km. providing an impetus towards the conservation efforts directed in saving the megaherbivore.

The population estimation of elephants is conducted by this Ministry every five years. To commemorate World Elephant Day on 12th August, 2021, in this issue of "Trumpet" we emphasize upon the need for a landscape level approach in synchronized population estimation of elephants. This issue also covers the perspectives of the policy makers and administrators on the importance of conserving and protecting the species and its habitats.

I congratulate the Project Elephant Division and Elephant Cell team for bringing out the Fourth Edition of the newsletter "Trumpet" and hope that it plays quintessential role in disseminating the roles and responsibilities of all stakeholders to cohesively work towards elephant conservation.

With best wishes.

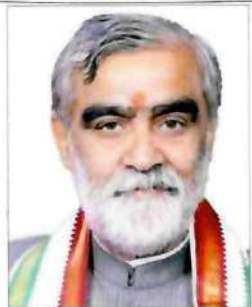
Date: 06.08.2021

(Bhupender Yadav)



एक कदम स्वच्छता की ओर

अश्विनी कुमार चौबे
Ashwini Kumar Choubey



राज्य मंत्री
पर्यावरण, वन एवं जलवायु परिवर्तन
उपभोक्ता मामले, खाद्य और सार्वजनिक वितरण
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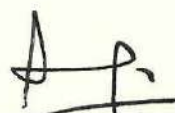
MESSAGE

Elephants are the largest land mammals alive today and also among the most intelligent species on Earth. Being the largest land mammal, their size can maintain and modify the physical environments around them in a way that helps the wildlife community to thrive. The megahebevore plays a critical role as ecosystem engineers, maintaining mineral-rich clearings in the forest, on which many other species rely, and providing a way for important soil nutrients to be spread around at a continental scale. As seed disperses, they also help maintain the largest tree species, which happen to be the most important for carbon sequestration.

India's efforts in elephant conservation has excelled with around 30,000 wild elephants as per the elephant census conducted in 2017; double the number that had dwindled in the 1980s. Besides the stringent laws adopted in the country to protect the Indian elephants, the significance of the elephant in Indian culture and mythology has also contributed to a remarkable level of tolerance and support of people towards its survival and conservation.

Being migratory and large ranging animals, the species move across landscapes. However, fragmentation and degradation of landscapes have gradually led to range expansion of elephants into newer habitats that requires development, and adoption of a wide variety of prevention and mitigation approaches. Therefore, assessment of large mammal population sizes becomes crucial for the management of Protected Areas which is feasible through a reliable estimate of population size.

I applaud the efforts of Project Elephant Division and Elephant Cell in emphasizing these critical issues in this issue of newsletter "Trumpet" and commemorating this World Elephant Day look forward to a greater participation of people across all segments of the society to pledge for elephant conservation for our future generation.


(Ashwini Kumar Choubey)

॥ प्लास्टिक नहीं, कपड़ा सही ॥



सचिव
भारत सरकार
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
SECRETARY
GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

आर पी गुप्ता
R P Gupta



MESSAGE

Elephants serve a critical role in our ecosystem and are, therefore, known as a “keystone species”. As the largest of all land mammals, they play an important role in balancing natural ecosystems. But threats to this giant of the forest are numerous. Indiscriminate human land use, impeding ancient migratory elephant corridors, growth of commercial agriculture and infrastructure development, linear developments have put the future of this keystone migratory species at risk including the fragile ecosystems that depend on it.

At the turn of 21st century, there are 30,000 elephants in the wild occurring on only about 10% of their historical range and many remaining populations are small, isolated and vulnerable. India's extensive forests where elephants roamed widely, now cover less than 20 percent of the country, and barely half of that is suitable for elephants.

Despite the several challenges faced, Government of India has been working optimistically for a secured future of elephants through ecologically sound land-use planning and reenergising mitigation systems to alleviate human-elephant conflict.

This issue of the quarterly newsletter “Trumpet” showcasing population estimation regime and challenges to address during range expansion of elephants brings and definitely sets the tune towards a dedicated and synergized effort of this Ministry and all stakeholders for the upcoming elephant census scheduled in 2022.

(R P Gupta)

New Delhi
August 02, 2021

सौमित्र दासगुप्ता
SOUMITRA DASGUPTA



अपर वन महानिदेशक
भारत सरकार
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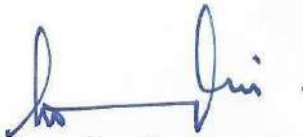
MESSAGE

India is one of the thirteen elephant range countries having the maximum number of wild elephants. National Legislation on Wildlife [Wildlife (Protection) Act, 1972] and the Project Elephant launched in the early nineties together gave a new impetus to elephant conservation. Since then, the project coverage has been increasing with over 65,000 sq.km. of area being conserved today as Elephant Reserves in 17 elephant states of the country.

In a country of over a billion people, the untimely death of elephants due to destruction of elephant habitats and corridors invokes consternation. With concentrated efforts, India aims to secure a future for elephants sustaining the beauty and ecological integrity of their habitats and develop a tolerant relationship between the humans and elephants. This could only be achieved through solid, actionable and progressive framework for elephant conservation, prescribing innovative changes in governance, increased public participation, multi-scale collaborations and proactive conflict mitigation strategies.

This issue of "Trumpet" quarterly newsletter articulates the need for landscape approach for synchronised elephant population enumeration. The range extension or dispersal of elephants into new areas where elephant movements were not reported for the past two to three centuries warrants the need for ways and means to manage the issue without an escalation in human elephant conflict. The issue has for the first time delved into the inventory records of the zoos of India to monitor the issue related to elephants in zoos.

I appreciate the efforts of the team of Project Elephant Division and Elephant Cell in bringing out this issue to garner active support of one and all for saving our elephants, both in the wild and captivity.


(Soumitra Dasgupta)





*Asian elephants (*Elephas Maximus*) and its Global Status*

Brijendra Swaroop, IGF & Director, Project Elephant

In Asia, humans have had close associations with elephants over many centuries and are regarded as religious and cultural icons. Since they inhabit and roam vast areas, elephants are regarded as “umbrella species” because their conservation will also protect a large number of other species occupying the same area. They are also considered “flagship species” because of their large size and “keystone species” because of their crucial role and impact on the environment.

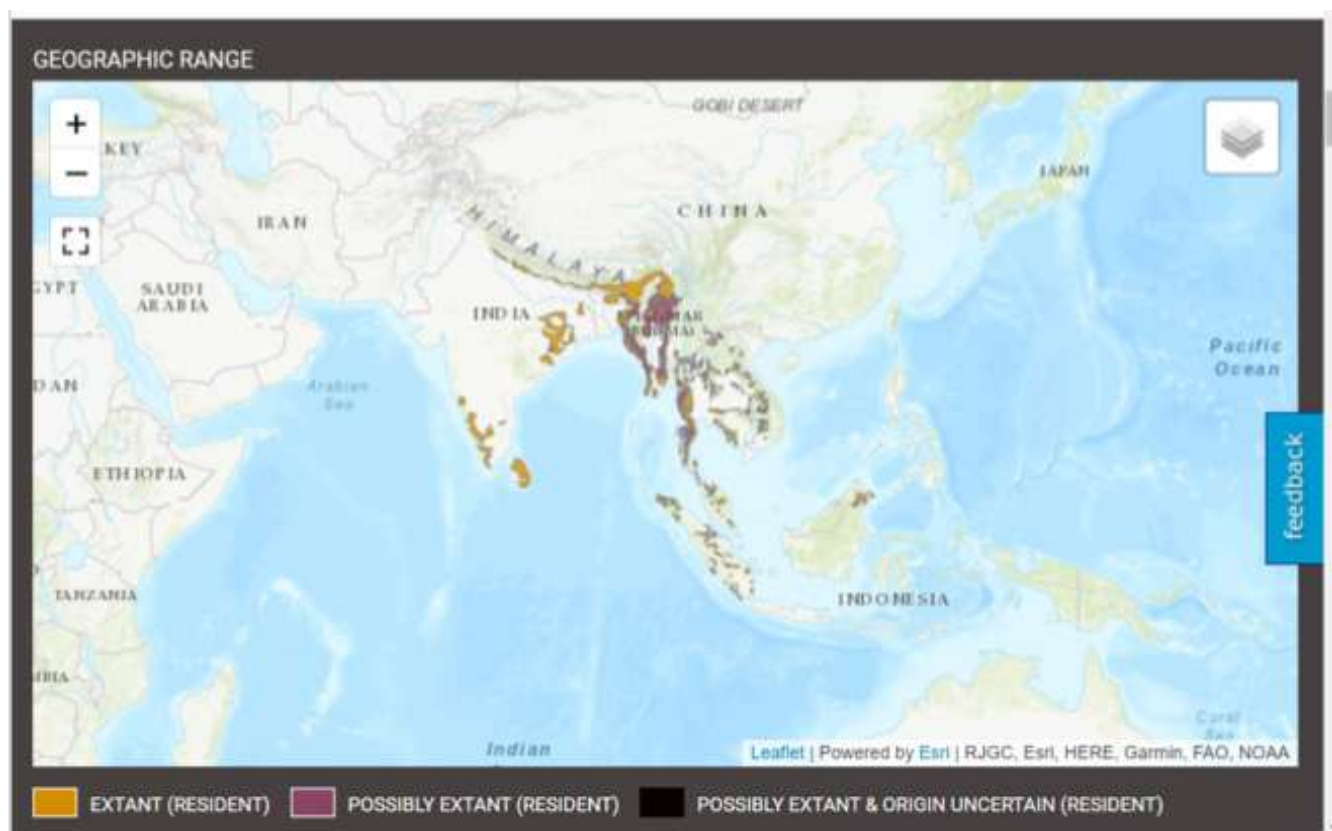


BRIJENDRA SWAROOP
IGF & DIRECTOR, PROJECT ELEPHANT

The Asian Elephant is listed as “Endangered” by IUCN because of at least 50% reduction in population size over the last three generations, based on a reduction in its area of occupancy and the quality of its habitat. While populations of Asian elephants in South Asia are relatively stable, numbers have declined in Vietnam, Laos, Malaysia, Myanmar and Indonesian Sumatra. However, there is lack of scientific studies to substantiate reliable decline in such population estimates across most of the Asian elephant range countries.

Asian elephants are extreme habitat generalist and inhabit grassland, tropical evergreen forest, semi-evergreen forest, moist deciduous forest, dry deciduous forested and dry thorn forest, in addition to cultivated and secondary forests or scrublands. Today their range is highly restricted and fragmented and approximately 90% of their historical range has been lost and only one third of the remaining Asian elephant range is within Protected Areas defined by the International Union for Conservation of Nature (IUCN).

Asian elephants currently occur in 13 Asian countries: Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Laos PDR, Malaysia, Myanmar (Burma), Nepal, Sri Lanka, Thailand, and Vietnam. In Asia, less than 50,000 elephants live in the wild, and the highest number of Asian elephants is found in India (approximately 30,000 individuals) while the lowest numbers are found in Vietnam (approximately 10- 30 individuals). Asian Elephants still occur in isolated populations in its distribution range in approximately an area of 4,86,800 km². Although not yet extinct in any of the 13 range states, in five countries - Bangladesh, Bhutan, China, Nepal and Vietnam, the number of wild elephants in the entire country is less than 200; in another three countries - Cambodia, Laos and Thailand it is less than 1000. Indonesia (Sumatra) and Vietnam, elephants have crossed a threshold to become ‘critically endangered’. In



Source: The IUCN Red List of Threatened Species: *Elephas maximus* – published in 2020. <https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T7140A45818198.en>

India, Sri Lanka and Bhutan, elephant population is on the increasing trend. Approximately three fourths of all wild Asian elephants are in India and Sri Lanka. However, in Myanmar and Cambodia elephants are thought to be present in large areas, but no definitive data exists. The Sumatran elephant is one of four unique sub-species and local extinction of elephant population have probably occurred in all ranges states in the

About 20 percent of the world's human population live in or near the present range of the Asian elephant. Developmental activities of elephant habitats by humans are resulting in shrinkage of the range of the species and the fragmentation of its distribution. The challenges confronting elephant conservation in most elephant Range States are habitat loss and fragmentation, human-elephant conflict, and poaching and illegal trade of elephants. Human encroachment, competition with livestock and the construction of roads and railways are further increasing the pressure on remaining elephant populations.

All range state governments have recognized Asian elephants as endangered and in need of protection, which keeps the hope alive for the long term survival of the species. The majority of country populations are below

the minimum viable population threshold. Therefore inter-governmental collaborative management is critical for the conservation and management of Asian elephants in general and trans-boundary populations in particular.

COUNTRY	POPULATION ESTIMATE
Bangladesh	289–437
Bhutan	605–761
Cambodia	400–600
China	300
India	29,964
Indonesia	1,784–1,804
Laos	500–600
Malaysia (Peninsular)	1,223–1,677
Malaysia (Sabah)	2040
Myanmar	2,000–4,000
Nepal	109–145
Sri Lanka	5879
Thailand	3,126–3,341
Vietnam	104–132
Total	48,323–51,680

10 Cs to Conserve Elephants

Culture and Heritage:

For millennia, humans and elephants have shared the earth and lived together in harmony. Of the 13 Asian elephant range countries, India with 60% of the global Asian elephant population leads the world in Asian elephant conservation. Elephants our cultural icon species and National Heritage Animal of India, is thriving well due to effective conservation measures. Join us on World Elephant Day 2020.

Compliance of legislations:

Out of the 50,000-60,000 Asian elephants in the wild, India is home to around 30,000 wild Asian elephants. India accords the highest possible protection to elephants by its listing under Schedule I of the Wildlife (Protection) Act, 1972 of India. We pledge to protect elephants through compliance of strict domestic and international legislations. Join us on World Elephant Day 2020.

Conflict management:

Human Wildlife Conflict today continues to surface as one of the critical challenges for elephant conservation in the country. Rather than addressing the indicators of human – elephant conflict, the Government is committed to work on the underlying drivers of HEC. Though challenges are umpteen, Ministry constantly endeavours to come forth with new ideas and strategies that are low cost and innovative to mitigate human – elephant conflict. On this World Elephant Day let us reaffirm that we will follow inclusive sustainable co-existence with elephants.

Crime Control:

Demand for ivory stimulates illegal trafficking and poaching of elephants. Selective poaching of males, especially males with large tusks, will have a severe impact on elephant population viability in the country. India stands determined to bring an end to the demand for ivory and crack down on all emerging networks that fuel the demand for ivory. The Central Government along with States are having strict vigil to prevent poaching and also break the wildlife trade nexus across the nation. On this World Elephant Day 2020 lets say “No to Ivory” and Stop Ivory Trade.

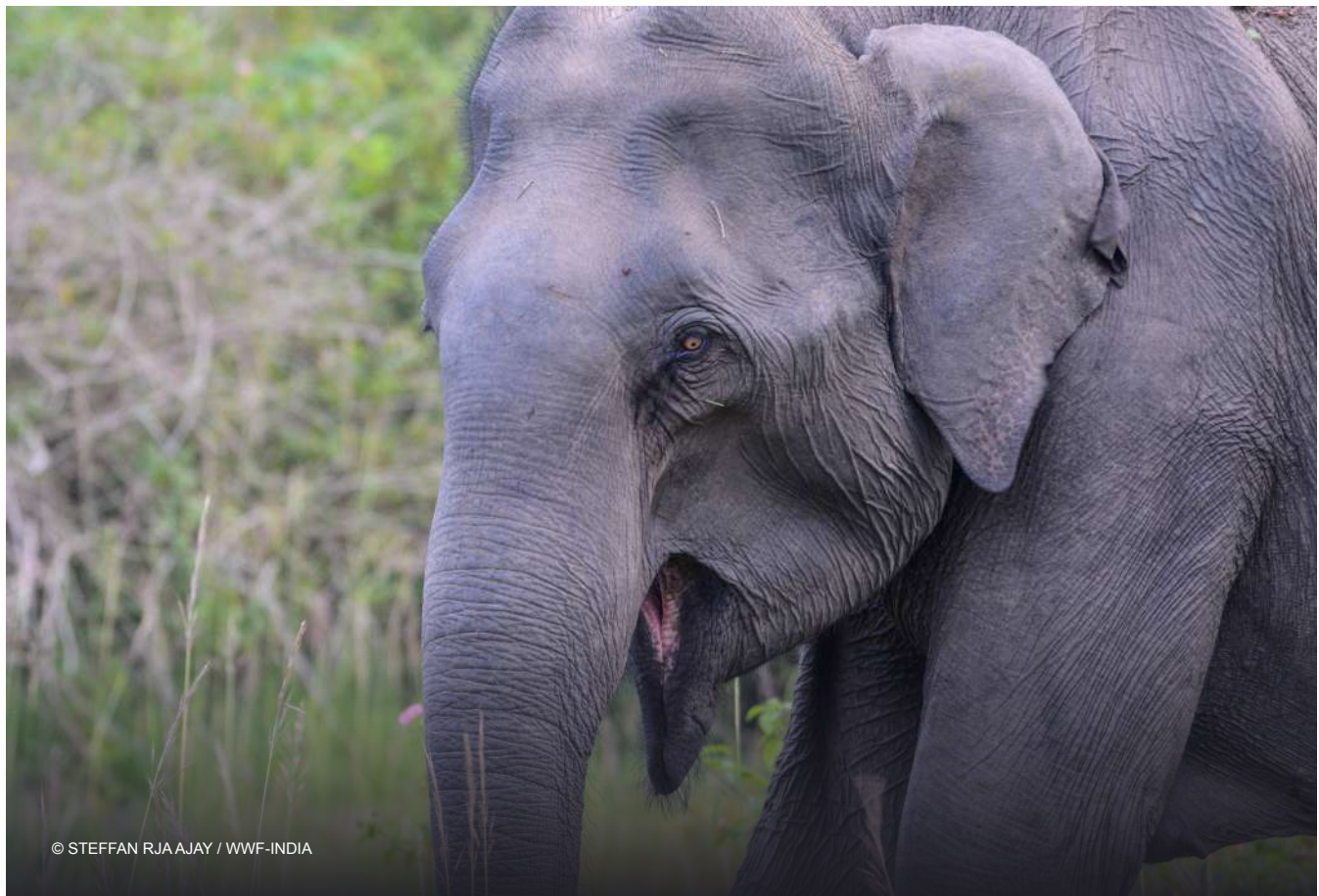
Conservation across boundaries:

Wild elephants do not recognise international borders and movements of elephants cannot be bound by the physical boundaries. Elephants are long ranging animals and they move across Bhutan, Nepal and Bangladesh. The best way to tackle transnational crimes is the international cooperation among National Governments, NGOs and local communities. On this World Elephant Day, India acknowledges the need to protect the natural movement pathways of elephants and hails the support of neighbouring countries for transboundary conservation of elephants.

Capacity Building:

The key to success of conservation is to improve the knowledge and skills of all stakeholders such as forest departments, police, linear agencies, border security





forces through capacity building. Capacity building is an essential part of conservation strategy across all sectors and levels to deal with current problems and pave way for improved conservation of elephants. Let's unite our hands this World Elephant Day and come forward to save elephants for the welfare of our future generations.

Community Participation:

In today's conservation practices, communities play a pivotal role in effective landscape scale conservation of wild animals. Communities need to be involved in all activities including planning and natural management to ensure the long-term survival of elephants. Communities form an integral part of the three pillars of landscape scale conservation: working with species, habitats and people. On this World Elephant Day, let's strengthen the bond of participation for continued survival of elephants.

Corridor protection:

Wildlife corridors are an important means of ensuring larger habitat availability to species, genetic exchange within and between populations, and the minimising of human- elephant conflict in altered habitats. Maintenance of wildlife corridors is an essential element of managing landscape and an important tool to overcome the adverse effects of habitat fragmentation. 101 elephant corridors identified in the country and it is important to protect the corridors for long term conservation of the National Heritage Animal. This World Elephant Day 2020 let us give the elephants their right of passage.

Captive elephant conservation:

India is home to 2700 captive elephants. The Ministry is also providing financial aid to State Governments for establishment of Elephant Rescue Centers/ Rehabilitation Centers for the welfare of captive elephants. A database of all captive elephants in the country with DNA profiling to ensure that no elephants from wild are included in the captive stock illegally. On this World Elephant Day let us give elephants our compassion and respect they deserve and not abuse them.

Conventions:

India is a signatory to Convention on Illegal Trade in Endangered Species (CITES) and Convention on Migratory Species (CMS) and has strict policy measures against the trade of wild elephants or its body parts. The CITES has listed the Asian Elephant in Appendix I which prohibits all commercial international trade of the species. Establishing strong alliance with other countries across globe, India led from front for the successful inclusion of Indian elephants in the Appendix I of CMS Convention this year. On this World Elephant Day, let us stand determined and not to let our guard down in protection of elephants and take lead in global alliances for conservation.

Tribute



Dr. Ramkumar Kalayansundaram (4TH AUGUST 1978 – 1ST JUNE 2021)

A wildlife biologist from Srkazhi in Mayiladuthurai district of Tamil Nadu, Dr. Ramkumar Kalyansundaram was instrumental in protecting elephant corridors in the Western Ghats for over a decade. With his postgraduate and doctorate from AVC College in Mannampandal near Mayiladuthurai, he worked for Wildlife Trust of India for 13 years till he passed away on 1st June, 2021 due to COVID.

Realising the importance of elephant corridors, he was instrumental in identifying and groundtruthing the elephant corridors across the country and played a pivotal role in securing the Wayanad elephant corridor in over seven years. He worked in conservation of elephants majorly in Tamil Nadu, Kerala and Karnataka and was currently working to secure another in BRT-Sathyamangalam landscape. His vast knowledge on the megahebivore paved the path for exploring the science of elephant corridors. He was the backbone in mapping the first edition of the 'Right of Passage', the corridor book that has become the go-to reference for elephant conservation in India. He has authored several research reports, papers and popular articles, and is co-editor of 'Right of Passage: Elephant Corridors of India (2nd Edition).

He firmly believed that the only long-term solution for human – elephant conflict is proper land use management and high priority should be to secure and conserve elephant corridor as this today, remains the most viable option for us to save the elephants, and possibly the entire faunal composition of the areas in question.

Symbolising the megaherbivore he worked for, Ramkumar was indeed a gentle giant with fierce passion and never say die attitude to conserve elephants. His work shall remain eternal and his contribution towards elephant conservation will not be forgotten.



Penny for a Thought: Wildlife Managers On Elephant Conservation



SHRI S. P. YADAV, IFS,
MEMBER SECRETARY AND ADG, NTCA

Like tigers, India is the major strong-hold for the Asiatic elephant. Most of the Elephant habitats are all within the range of the tiger and therefore investments made for tiger have been beneficial for elephant conservation as well. Conservation problems that plague tigers also affect elephants, especially demand for illegal wildlife trade, fragmentation of habitat and corridors by rapidly changing land use patterns and conflict with humans. Conservation measures need to secure elephant passage ways against the odds of all linear infrastructures. These elephant passage ways will ensure habitat connectivity for all biota of the region including that for tigers. In areas of high human-elephant conflict, mitigation measures need to include pulsating electric fencing on hard boundaries, timely and fair compensation for crop, property and human-life losses. Creation of large inviolate space by incentivized human resettlement from core areas of Protected Areas will not only help tiger conservation but elephant populations as well and help prevent degradation of forest quality by livestock overgrazing and thereby reduce elephant-human conflict. Like being done for tigers, problem elephants need to be identified and managed to prevent backlash from local communities against the entire elephant population. Awareness campaigns need to be initiated in parts of Central India which are being recently colonized by elephants since human communities do not have a memory and experience of living with elephants.



MS. TILOTAMA VARMA, IPS,
ADDITIONAL DIRECTOR, WCCB

Our country has the largest population of Asiatic Elephants (*Elephas maximus*) and despite highest level of protection accorded to the species (included under Schedule I of WLPA & Appendix I of the CITES) by the Govt. the elephants face multiple threats like poaching, habitat loss, human-elephant conflicts, fragmentation of habitat, depleting corridors etc. A multi-agency approach, strict law enforcement, securing habitat/corridors, mitigating human-elephant conflicts and coordinated efforts of various stakeholders are some of the measures already initiated by the Govt. for protection and conservation of the species in India. WCCB in coordination with other law enforcement agencies of the country has been working continuously inter alia to combat and neutralize crime related to elephant. Public support must be mobilized to supplement the efforts of the Govt. Agencies for effective protection & successful conservation of the species in our country.



SHRI VIJAYKUMAR GOGI, IFS,
CWWLW, KARNATAKA

Karnataka has proud position of having two Elephant Reserves and maximum number of Asiatic Elephants in the country and thereby significantly contributing towards protection and conservation of Asiatic Elephants in wilderness. IN spite of conservation efforts leading to stabilization of elephant population to over six thousand, shrinkage of habitats and fragmentation of landscapes has manifested in severe man-elephant conflicts. State Government has taken proactive steps of creating barriers between elephant habitat and human landscapes by establishment of nearly 200 kms. of barricade utilizing the used and dismantled railway lines, excavation of nearly 1000 kms. elephant proof trenches and also erection of nearly 1700 kms. of solar fences to minimise the conflict. Shortage of resources for establishing the barriers to fullest length at one go and for maintenance of erected barriers on regular basis has posed a greater challenge thereby reducing the effectiveness of the barriers. Considering the agony of large number of farmers in the form loss of life and livelihood, it is imperative to augment resources for resolving man-elephant conflict. State is looking forward for enhancement of Central Assistance towards the same.



SHRI SASHI PAUL, IFS,
CWWLW ODISHA

Elephant, a majestic species on earth is a key component of our ecosystem. Its huge size and large habitat range has put it under tremendous pressure due to conflicting developmental needs. This has led to a crisis situation leading to Human Elephant Conflict known as HEC. Key to this problem is turning Human Elephant Conflict (HEC) into Human Elephant Co-Existence (HEC). Sooner we achieve it, better it is for the survival of this National Heritage Animal.



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SHRI RAJIV RANJAN, IFS,
CWLW JHARKHAND

The majestic elephant is an integral part of a balanced ecosystem. Unfortunately, human-elephant conflict has become so commonplace these days. The loss is being inflicted upon both sides quite significantly. The conflict is indeed a result of habitat loss and fragmentation especially owing to linear infrastructure projects. Though these projects aim at making our lives convenient, these are actually at the expense of a balanced ecosystem. Apart from laying focus on awareness generation etc. it has now become imperative to adjust our mindset towards increased cost of mitigation using the most appropriate technology.



SHRI H. C. CHAUDHARY, IFS,
CWLW MEGHALAYA

Elephants, the largest land mammal on earth, are sacred symbol of wisdom, peace, mental strength and power. Dense evergreen forests of Meghalaya, majority of which are owned by communities and private individuals, are home to a healthy population of wild elephants. The State has a long history of harmonious co-existence of humans and elephants. Elephants need extensive land areas to survive and meet their ecological needs, which include food, water, and space. Increase in human population and expansion of human habitations and road network to natural habitats and migratory corridors of elephants in recent decades has brought the elephants in conflict with the people residing in and around these habitats and corridors. Several measures are being taken by the Forests and Environment Department with active participation and cooperation of local communities to prevent, minimise and mitigate human-elephant conflicts.



SHRI VEDPAL SINGH, IFS,
CWLW, NAGALAND

Elephants – the gentle giants of forests - are not only an integral part of Indian culture, mythology and psyche but, also one of the most important players in maintaining the integrity and perpetuity of the ecosystems they inhabit. Given their needs and size – elephants have to move a lot, thus impacting ecosystems far and wide. Their sheer presence imparts a certain allure to our jungles known only to those lucky enough to walk through our jungles amidst the rumbles.



DR. D. K. SHARMA, IFS,
CWLW, TRIPURA

Wild elephants being large animals have high demand for food but increasing habitat fragmentation is causing their isolation resulting in rising number of human-elephant conflicts. Shrinking forest ranges and feeding grounds for elephants are cause of serious worry, which results into their wandering into food rich farms falling in their movement path. The Department has enhanced steps in this direction and has developed safety net by providing compensation in the event of injury or death or damage to crops. Unhindered corridor for movement of elephant is important to reduce conflicts in the field. The department has already advised National Highway Development Corporation Ltd. to construct elevated routes in certain patches and corridors frequently used by elephants. Radio collaring of few individuals can provide strategic information on elephant movement for judicious deployment of personnel in the field. The cooperation and involvement of local population in sustainable eco-tourism models will further enhance conservation measures for elephants.



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**SHRI VINOD KUMAR YADAV, IFS,
CWLW WEST BENGAL**

Elephants are the best natural resource managers in the animal kingdom. They need large space for the ecological and biological needs which have been encroached by humans. This has resulted in increasing conflict as their population in India is increasing despite several threats to these gentle giants. Best management practices need to be adopted for habitat management, conflict management, securing elephant corridors, protection measures and global actions to stop trade in ivory. West Bengal is focusing on participatory elephant conservation with active involvement of Joint Forest Management Committees and other stakeholders to reduce conflict. Awareness generation among local committees is key to the long term conservation of this endangered species with an aim for coexistence on this Earth.



**SHRI P. V. NASINGA RAO, IFS,
CWLW, CHHATTISGARH**

The ecological functions performed by elephants are myriad and complex and have a huge impact on their ecosystem and thus are considered as engineers of forest. The advent of elephant populations making the landscape of Chhattisgarh as their habitat started in 1988. They being a long ranging animal have continued to explore newer habitats in the state and have become more or less permanent residents. Chhattisgarh with a sizable of elephant population in Northern part and South Eastern region, presents a challenge not only in managing and conserving elephant population but also keeping the incidents of human-elephant conflict to a minimum. The key initiatives which included the establishment of the Surguja-Jashpur Elephant Corridor, habitat development and various mitigation measures have ensured that the people living in these landscapes co-exist with elephant population without animosity towards them.





**SHRI MAHENDRA KUMAR YADAV, IFS,
CWLW ASSAM**

Elephants are magnanimous, sensible, social and a tribe of very intelligent and caring animals that have ever walked on this planet Earth! Watching an elephant herd comprising of mothers, aunts, young babies, sub adults and pregnant cows, foraging together or on move is such a sight that cannot be described in words. Elephants are just like humans needing love and care. Today their homes are ravaged due to our greed for more land, their passages are fragmented and full of hurdles, we tend to treat them unkindly. They are too much at loss, yet forgiving; but often some of them express their anguish at our unbecoming behaviour. We must give them back what we have snatched away from them. These magnificent animals called elephants have full right to passage and habitat, and That must be granted unconditionally, irrespective of whatever it may cost us- the humans, the Homo economicus. Today the need of the Elephas maximus is maximum, and the world must stand by them. Secure habitats and safe corridors mean secure human life on Earth. Long live elephants!



**SHRI JABAR SINGH SUHAG, IFS,
CWLW, UTTARAKHAND**

Elephants- the gentle giants of forests- are not only an integral part of Indian culture, mythology and psyche but, also one of the most important players in maintaining the integrity and perpetuity of the ecosystems they inhabit. In Uttarakhand, elephants are mainly found in the Corbett, Rajaji and Terai region in low land areas in the foothills of the Himalayas. The anthropogenic developmental activities have caused fragmentation and contraction of forest areas, which has hindered the movement of elephants and the destruction of their natural habitats. For the reduction of human-elephant conflict, it is very important to balance between development works and the needs of elephants and keep elephant corridors secure. In this direction, Uttarakhand has declared a 5404 square kilometers area along the Southern border as Shivalik Elephant Reserve due to which there has been a steady increase in the number of elephants in Uttarakhand in the last years.



Need for Landscape-Level Approach in Synchronized Census of Asian Elephants in India

Nagarajan Baskaran

India holds by far the largest number of wild Asian elephants, estimated at about 30000 (Project Elephant, 2018). The present-day distribution of elephants in India is a fraction (about 3.5%) of its former range that extended from South of Himalayas to the entire subcontinent, with the exception of the most arid tracts, about six thousand years ago. The species is presently confined to the forested hilly tracts of four different regions: (i) the foothills of Himalayas in the north, (ii) the north-eastern states, (iii) the forests of east-central India, and (iv) the forested hilly tracts of Western and Eastern Ghats in southern India (Fig. 01). A small population of feral elephants exists in the Andaman Islands. The species confers the highest protection through its placement in Scheduled I and Part I of Indian Wildlife (Protection) Act 1972. Indian culture and mythology have also contributed to a remarkable tolerance and support of people towards its survival and conservation. Nevertheless, the country's strong economic growth along with resource needs of growing human population and its resultant fragmentation, and loss of habitats and human-elephant conflict, emphasise the need for appropriate long-term plans and policies to manage and conserve the species effectively. Unfortunately, much of the past conservation initiatives in India have largely been confined to the Protected Areas (PAs) such as Wildlife Sanctuaries and National Parks. However, wide-ranging landscape species like elephant that ranges beyond PAs into Territorial Forest Divisions, where human activities receive equal priority unlike PAs. Similarly, there are elephants that range extensively not only in PAs and territorial forest divisions but also in forested revenue and private lands, which are exclusively meant for human needs. With ever-increasing human population, in territorial forest divisions, revenue and private lands including at the fringes of PAs, increasing number of people who come in contact with elephants, there is an increase in human-elephant conflict.

Very often the problem is exacerbated by the lack of easily comprehensible, field-level information/data on the existence and status of natural habitats and critical habitat links across landscapes. There is little information that is accessible in user-friendly form to planners, conservation activists and grassroots communities. This situation is partly responsible for the uninformed location of projects and developmental activities that result in the fragmentation of habitats and loss of biodiversity. Thus, the lack of conservation programmes that go beyond PAs into the broader landscape and lack of easily comprehensible data are the major threat to conservation of landscape species and biodiversity in India.

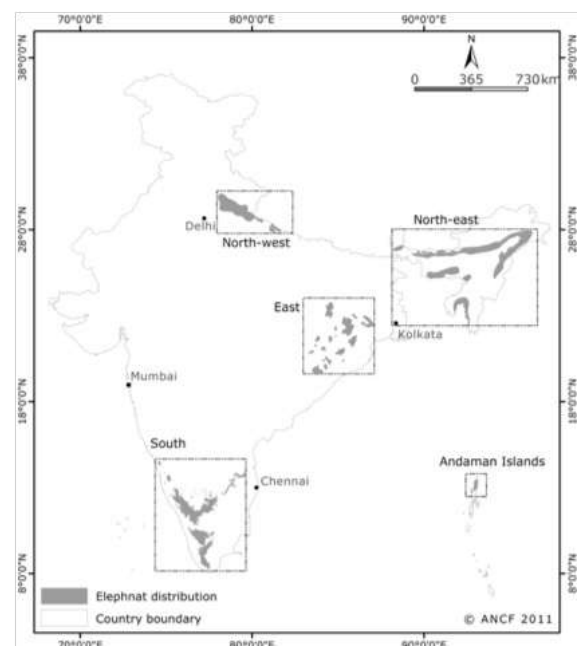


Figure 01: Map showing the regional distribution of Asian elephant in India

Importance of landscape-level approach in population estimate:

Long-term monitoring of population is essential to understand the population trends, evaluate the impacts of past management actions, and to develop conservation and management strategies. Given the wide-ranging nature of the species and population range spread across states in India, the species requires landscape-level approach in population estimate. Nevertheless, much of the past efforts were restricted to park level, that too mostly in PAs. Since 2002, the Project Elephant, Govt. of India takes up synchronised approach of population estimation with similar methods across the region, at five-years interval. In addition, the census carried out by the Indian Board for Wildlife ones in every five-years interval fell in between the census conducted by the Project Elephant. The approach has yielded comprehensive data on population size for country in 2002, 2005, 2007, 2010..... 2017. Nevertheless, for a given elephant population or landscape the selection of sampling sites, compilation and analysis of data in the synchronized elephant census are carried out by different states and thus there has been no initiatives to compile and project the number for each landscape or population. When the elephant number for a given landscape is summed-up from the division-based estimates of synchronized elephant census by various states, there are remarkable fluctuations in population size in different years (Fig. 02), which is not justifiable. Although, the area coverage by the two census schemes (by Project Elephant and Indian Board for Wildlife) may marginally vary, but both of them cover all important elephant-ranging forest

divisions. Thus, the discrepancies in population size can't be completely attributable to the difference in area coverage. In 2017, the all India synchronized elephant population estimate data were compiled centrally, yet it deals about the regional, state and division-based elephant numbers and not the population or landscape-based numbers. Although, the division-based and state-based elephant numbers are essential for administrative purpose, a landscape or a population-based numbers is biologically essential not only to overcome the anomalies experienced in the past, but also to understand the actual trend in a population. Therefore, for each landscape or population, a centralized approach in survey planning, data compilation and analysis including the use of GIS for sampling procedures would help overcoming the anomalies and improve the reliability of the estimate better than the existing state-based approach.

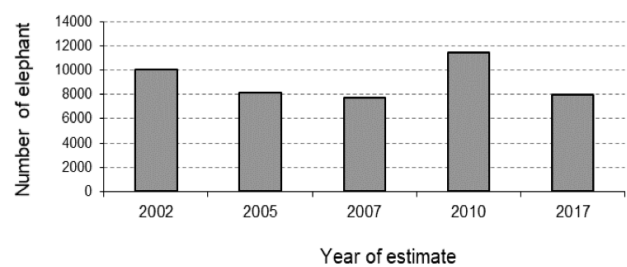


Figure 02: Elephant population estimated in different synchronized elephant census using sample block count method in Nilgiri-Eastern Ghats landscape, southern India.





Importance of appropriate sampling time and adequate frequency:

Considering visibility and access factors, population estimate is being done in the month of May. However, the use of dung count method during the month of May for elephant population estimation may not be appropriate, as it is a transitional period between dry and wet seasons, in which the 'steady-state assumption' of dung decay may not hold true. Similarly, the use of the method during May could also suffer from dry season forest fires that burn the dry dung piles. Therefore, it is desirable to carry out the exercise in the middle of dry (February) and wet (August–September) seasons. Further, it is important to move ahead from the present exercise of one-time estimate per census exercise to at least twice a year (one each in dry and wet seasons) to obtain more reliable estimates and arrive at a better understanding of seasonal influence on the dynamics of elephant dung piles in the system and on the distribution pattern of elephants.

Importance of integrating population structure and mortality data:

The data on the number of individuals (population size) alone are inadequate to predict future trends of any population. For example, a smaller population with higher proportion of younger age-classes (calves, juveniles and sub-adults) is likely to have higher growth rate in future than a large population with lower proportion younger age-classes and thus the authorities concerned could aware its future trend and take initiatives to manage the population effectively. Therefore, age structure, sex-ratio, age specific fecundity, and mortality, age at first conception, and last calving, and mean-calving interval

are all the important parameters to understand the population dynamics and predict future trends. At present, the synchronized elephant census only incorporates the age-sex composition data. Further, the population structure data obtained from sample block and water-hole counts during synchronised elephant census are not comparable with those of research studies from the same area indicating lack of experience in age-sexing of elephants by the survey team (forest department field staff and volunteers). Appropriate training to selected staff and data collection by trained staff on a regular basis (during their field perambulation) together with the recording of precise annual mortality data and integrating them into the census report would help to determine accurate demographic analyses including the assessment of natality, mortality and fecundity.

Conclusions:

India, besides its large human population, is fortunate to have 60% of global population of Asian elephants in the wild. The synchronized elephant census approach by Project Elephant, Govt. of India since 2002 has given a better insight about the population size of elephants at regional and national level. The elephant population numbers per se are not an issue, as far as India is concerned. Therefore, it is essential that Project Elephant brings in changes in the forthcoming synchronized elephant census to move forward from the present regional-based to landscape or population-based planning and compilation of elephant numbers and integration of population structure and mortality data to understand the demography and the trend of each population, so that authorities concerned could take initiatives to manage the population effectively.

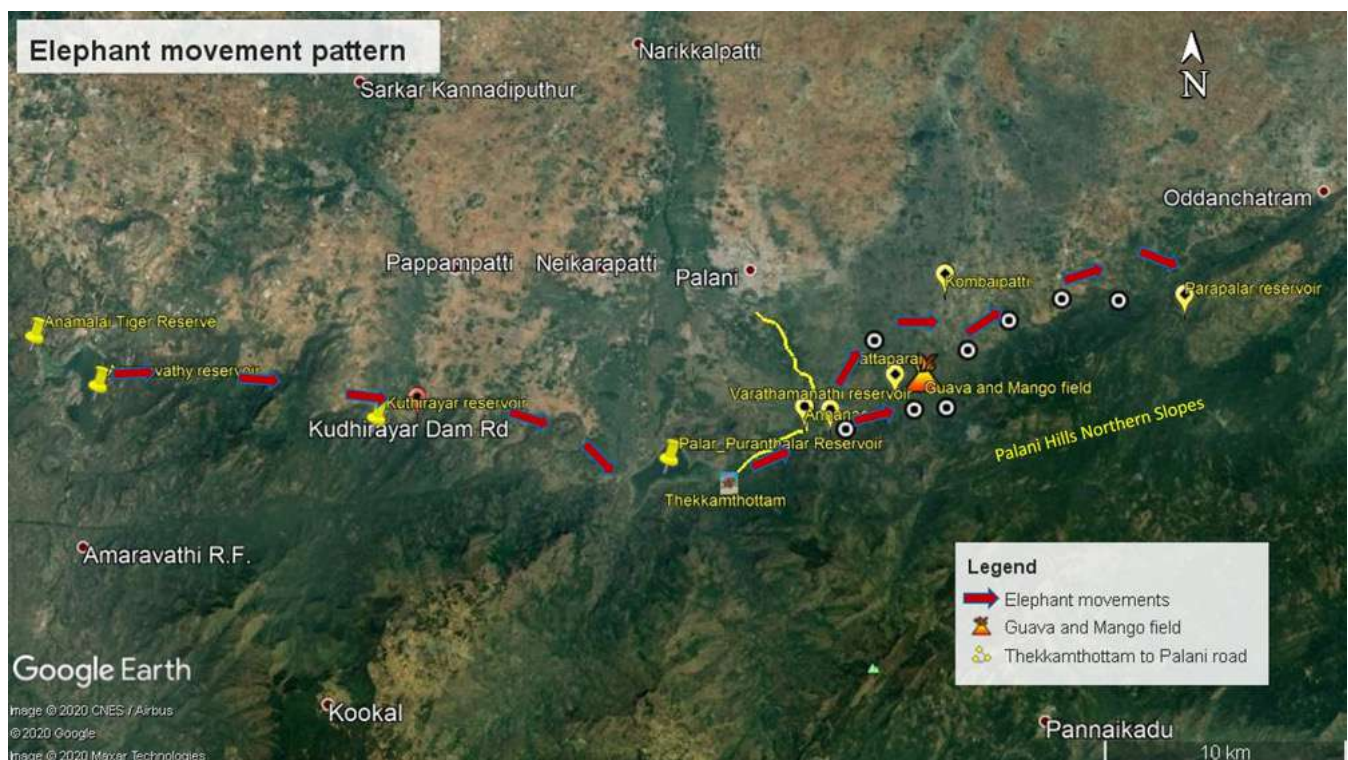
Wandering of elephants: Range extension or back to its own range?

B. Ramakrishnan* and G. Sivasubramanian

In recent years, range extension or dispersal of elephants into new areas where elephant movements were not reported for the past 2–3 centuries are becoming more common in southern India. For example, Hosur and Bannerghatta dispersing into Andhra Pradesh and elephants from north Canara dispersing into Maharashtra and Goa. Similarly, elephant population in the east central Indian range especially from south Odisha, extending their ranges into northern Andhra Pradesh and elephants of old Bihar (Dhalma Wildlife Sanctuary) extending their range up to southern Bengal region. Range extension is also an indication of either resource lack in their traditional natural habitat or growing elephant population. In either

case, management must take into account the presence of elephants in newer areas and ways and means to manage them effectively without much conflict with people.

Records of District Collector Madurai on compensation payments for elephant damage in Kannivadi Forest Range (present Oddanchatram Range, Dindigul Forest Division) during British regime in 1812 and another incidence of human causality by elephants near Pudukottai village in the same range in early 18th or 19th century evidenced the existence of elephants in this area. However, since then there was no record of elephant movement for the last 200 years. Between February and July 2016, we found a total of



Map showing elephant movement pattern of elephants from Anamalai Tiger Reserve to Thekkamthottam and Parapalar reservoir.

eighteen individuals comprising seven adult female, one sub adult female, four adult male, two sub adult male and four juveniles/calves,. The survey witnessed presence of elephants in foot hills of Oddanchatram Forest Range, which is falling under the Palani Northern Slope Reserved Forests of Dindigul Forest Division, Tamil Nadu, Southern India which is about 35 km long foot-hill stretch.

Although, the foot hills of Oddanchatram forests have a natural forest and suitable for elephants, the area was not reported elephant's presence until 2006. Since 2006 elephant movement into Oddanchatram Forest Range is likely from Anaimalai Tiger Reserve and Chinnar Wildlife Sanctuary. The elephants crossed Palani-Kodaikanal road which is acting as an impediment for elephants and reached Thekkanthottam, Annanagar and Varathamadhi reservoir. Elephant's range extension is also an indication of either resource lack in their traditional natural habitat or population increase. In either case, management must be taken it into an account for the presence of elephants in newer areas and ways and means to manage them effectively without much problem to people as well as animals either they are re-establishing their traditional range or extending its range into new areas after two century. In this context, this article throws light on the new issues of range extension by elephants in Oddanchatram Forest Range. The trend of range extension by elephants in Oddanchatram Forest Range is a greater relevance to the management of Asian elephant population not only for this area and also adjoining landscape areas like Anamalai Tiger Reserve. Therefore, a new range extension by elephants into Oddanchatram Forest Range could be viewed as a unique case to derive management implications for elephant conservation in this region. This article concludes that the elephants are mostly move

through two different trials for their movement pattern either via the foot hill forests or crop fields.

- a. Movement of elephants along the foot hills: (*from Thekkanthottam to Pudukottai via Anna Nagar, Varathapattinam and Sattaparai*) Very often this route was utilized by elephant herds to cross the check post of Palani-Kodaikanal road near Thekkanthottam to reach Pudukottai. From Pudukottai the herds climb up and reach to Parapalar reservoir. It has been observed that the herds stay for a week at Parapalar reservoir and raid the crop fields in the villages of Bethelpuram, Pulikuthikadu, Mettupatti and Thattakuzhikadu. These herds never attempted to climb beyond Pachalur, instead they moved up to Siruvattukadu, where the altitude is between 750 and 1000 MSL.
- b. Movement of elephants through crop fields: (*Thekkanthottam to Periya Ayyampalli pond, Vannanthurai, Gurukarai pond, Sattaparai and Karnansalai in Kombapatti RF*). It was observed that the elephants were also moved via. Josiyarkulam, Periya Ayyampalli-Kodaikanal road near Punganodai predominantly through crop fields. The final destination of the elephants is the Ponnimali north and south until it reaches to Sattaparai and Pudukottai further climbed to Parapalar reservoir and ended at Bethelpuram-Siruvattukadu agricultural field.

Number of elephants seen so far

Eighteen individuals were seen with different numbers in twelve occasions during our study period. All the repeated elephant sightings were carefully reviewed to remove the duplications according to their individual physical features. In total, the elephants sighted in the area consisted of 7



A panoramic view of water spread areas of Palar-Puranthalar reservoir at Thekkanthottam where elephants crossing from Palani-Kodaikanal high way towards Oddanchatram range



Presently elephant using habitat at Palani Northern Slope Foot Hill Forests in Dindigul Forest Division

adult female, 1 sub-adult female, 4 adult male, 2 sub-adult males and 4 juvenile/calves. Over-all, sex ratio between male and female irrespective of age class was 1: 1.3. It was found that an adult male and a group comprising 9 individuals were frequently seen in this area.

Conclusion and recommendations

200 years before, elephants were seen in these areas (evidence from British records), which means these areas are part of annual seasonal home range of elephants in those days. Due to some reasons, the elephants were not turned back to their traditional range about 200 years. Since 2006, the herd comprising 18 individuals dispersed into their traditional part of home range and staying back round the year till now (evidenced from 7 human casualty; 2 elephant electrocution). Therefore the present

study concluded that this can be a kind of geographical distribution range extension by elephants. To establish this it should be scientifically studied for at least one or two years. Now the elephant herds instead of coming back, further extended its movement up to Kannivadi Forest Range of Dindigul Forest Division. Last two years, the elephant herd moved up to Batlagundu Forest Range where 2 forest field staff got injured by one of these tusked while they were involved in driving back these individuals it into their traditional range during 2019. In a nutshell, it is clearly envisaged that the elephant herd is not turning back to its traditional range instead, it keep extending its range into new areas which is part of their ancient home range.

Interesting Encounters with Tuskers

Dr. A.J.T.Johnsingh

The summer sun was bright and warm on this day in 1977, and I was comfortably seated up in the *Terminalia bellirica* tree which was just to the south of the *Nanjanapura kere* (a waterbody) in Bandipur Tiger Reserve. The *kere* is about 2 kilometers from Bandipur village, which was the main tourism area then. The tree stood close to a heavily used wildlife trail which led to and from the *kere*.

Some days before, another evening, while seated up in the large silk cotton tree (*Bombax ceiba*) on the northern shore of the *kere* I had seen a large tiger coming along the trail close to the *T. bellirica* tree and drinking water for 5 minutes. In the beginning it lapped and drank very rapidly and gradually the speed of its drinking slowed down.

After drinking it turned around and sitting on its rump it slowly slid into the water (it is interesting to ask, why do tigers do that?), sat in the water for some time just cooling

its rump and left the water body. As it started walking away from the waterbody I took out an empty rifle cartridge and whistled like a dhole and the tiger immediately turned around, sat on its haunches and for some time intently looked around in my direction as if to locate the dhole, and then disappeared into the bushes. While sitting on its haunches, it was a little more than a meter tall and had a large roundish face which helped me to identify it as a male.

This sighting was the reason for me to sit up in the *T. bellirica* tree, which I did occasionally with the hope, that I one day I may get an opportunity to take a picture of a tiger at close quarters as it came to the *kere* for drinking. But it never happened. Yet my perch on the *T. bellirica* gave me several opportunities to observe multiple sambar and elephants, both in groups as well as alone.



Sitting on its haunches the tiger looked in the direction where from the 'dhole' whistle came!



When the tusker could not see the white of the egret it got frightened and ran away from the place

The southern part of the *kere*, close to the *T.bellirica* tree, was shallow and there was a rank growth of reeds. On the summer day in 1977, when I was sitting up in the tree, a magnificent tusker came to drink. It got into the shallow water and started drinking and then a pond heron (*Ardeola grayii*) flashing its whites flew in and landed amidst the reeds, a few meters from the tusker. The tusker saw the whites of the heron when it was in flight but to him the whites disappeared when the heron landed amidst the reeds. Interestingly this scared the tusker and he suspiciously looked for some time in the direction where the heron had landed and then, as the eyesight of bulls are bad, as he could not see anything, he cocked his ears, raised his tail, trunk and making a *kee...kee... kee* sound, ran away from the place.

It was unbelievable to see this happening and then I realized that elephants, though large, are chicken-hearted and can be easily frightened by an unseen danger. This understanding can be used to scare elephants, particularly a bull, if it is encountered while on a trek in the forest. But before taking steps to scare the elephant away, one should make sure that the wind is blowing from the direction of the elephant towards the person and so the elephant is not able to smell and know the presence of a human. A suitable escape terrain nearby is also a must just in case the elephant decides to charge. This can happen

if it's a "rogue" elephant and the person's best chance of escaping would be by using a deep nallah or a steep slope. Remember, this may not work with groups as they forage dispersed in the forests and a mother may rush in the direction of the disturbance when she feels that there is a threat to her calf.

Sadly, the ecological changes that are happening and have happened in Bandipur are not positive for wildlife as both the *T. bellirica* and *B. ceiba* trees have died out (some years ago I had seen a shoot coming from the base of *B. ceiba* tree, not sure about it now) and this is the case with many other valuable trees I had seen in Bandipur in the late 1970s while I was pursuing my dhole study. Many, beautiful and valuable trees have died out and no young trees have come up in their place.

In the year 1959, world renowned conservationist Dr. George B. Schaller had used this technique to scare away elephants from his trail while doing his mountain gorilla research in the Virunga Volcanoes in the Congo's Albert National Park (now Virunga National Park). In his delightful book *Mountain gorilla: Ecology and Behaviour* (1963) he has written that when he encountered elephants in the evening, while returning to his tin-roofed wooden shack, where his wife was staying, he would gently talk to them telling that he was an unarmed human being, did not intend any harm to them and if he did not reach his



As soon as the bull encountered us it turned around ran away leaving a ball of dung !

cottage before dark ,his wife staying alone will be worried. Invariably the elephants moved away from the path, and he reached his log-cabin before it became very dark.

In the winter of 1995, I was staying with the students of 5th MSc batch of Wildlife Institute of India (Sonali Ghosh and Manoj Nair were the students I remember) in Dholkhand forest rest house, Rajaji National Park. One morning, accompanied by Yasin, our field assistant, I took them on a walk along the *Guleria sot* (spring) which is between Dholkhand *rau* (river bed) and Sampawali *rau*. In *Guleria sot*, about 4km from the rest house, there used to be a cave on the left bank of the *rau* where I have often seen fresh tiger signs multiple times. Dholkhand wildlife staff used to tell me that the cave was a favored place for the tigers. The morning was misty, we walked in a single file along the wildlife trail that was on the right bank of the *rau* which ran north to south. The steep grass-covered hills, favored home of goral, rose to the right of the *rau*.

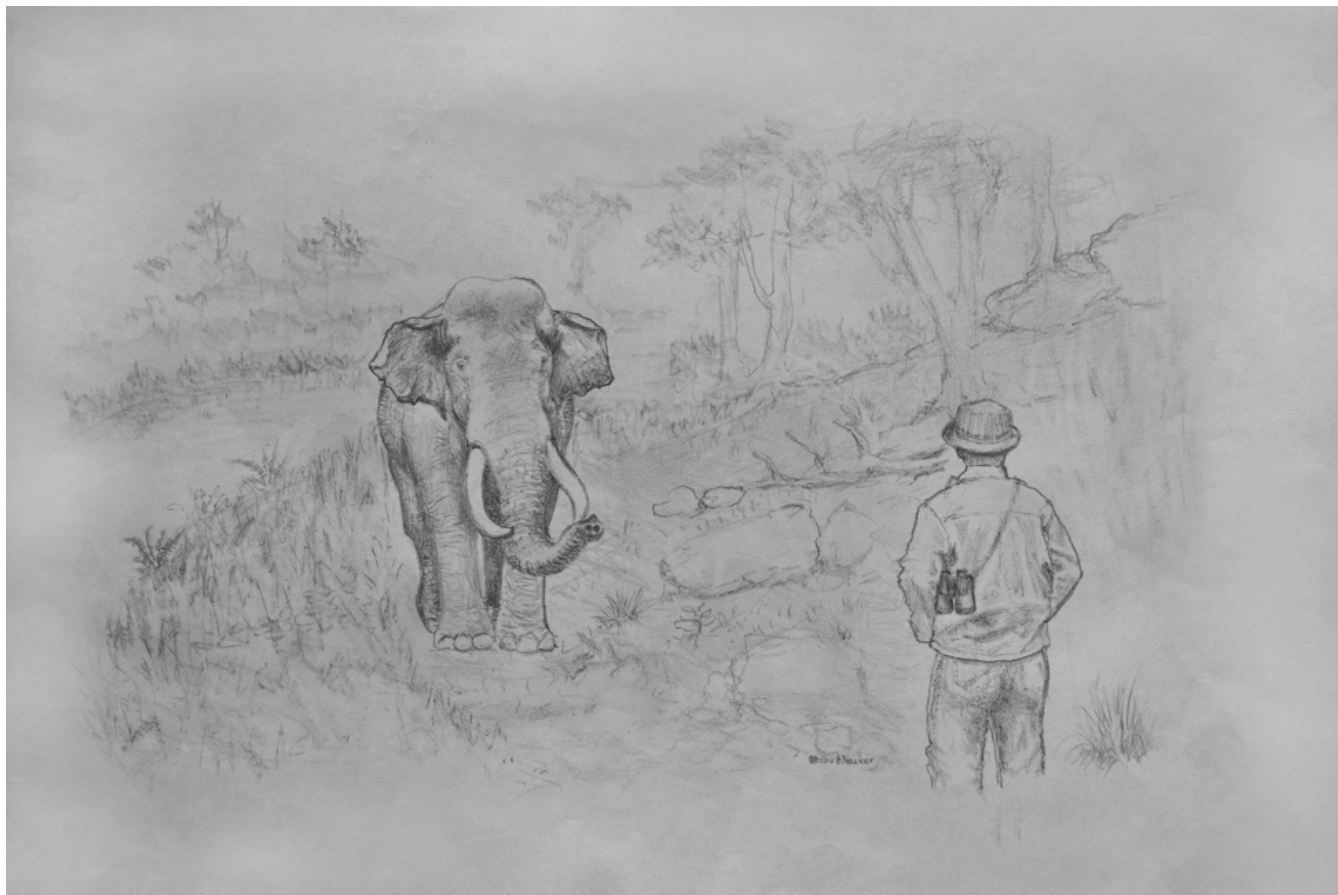
Surprisingly we did not see any animal all along the 4km walk although there were tracks of many species namely tiger, leopard, elephant, sambar, chital, porcupine and langur. After reaching the cave which had some old tiger signs we decided to walk back to the rest house for a hot lunch. Before starting the walk I told the students not to assume that they would not see any animal along the return trip just because they had not seen any while going

up the trip. As usual a request was made to them to be as silent as possible which was strictly obliged.

We might have walked two kilometers and abruptly in a turning, we met a magnificent tusker which might have been 35 years of age, coming along the same trail from the opposite direction. There was no time for us to run anywhere either up the hills or jump below in the *sot* and so we stood in a bunch and silently watched.

The noble animal had no intention of threatening us (my experience was most of the Rajaji elephants were noble possibly because they lived between the two holy cities, Haridwar and Rishikesh !!!) and when it was around 20 meters away, it turned around and ran away, leaving one ball of dung. Possibly the bull was more nervous than us, had no control over his bowel movement which made him to drop the dung and run away. We waited for some time and slowly went ahead and found the dung steaming like a large idli fresh from the oven. In fact some of us even warmed our numb fingers just by keeping them little above the dung .

When we were about 200m from the rest house, in the middle of the *rau* we saw a young tusker, may be 15 years of age. There was a meter-high sandstone rock in the middle of the *rau* and the bull with its trunk scrapped the rock, got some rock powder, and sucked it loudly. The



When the tusker realized that we were getting late for lunch it magnanimously left the place!

wind was blowing from the tusker towards us, and we all dressed in our field clothing stood in a bunch at a distance of ca. 60 m and watched it. Some of the students even made a sketch of the tusker focusing on its tusks which can be used for future identification.

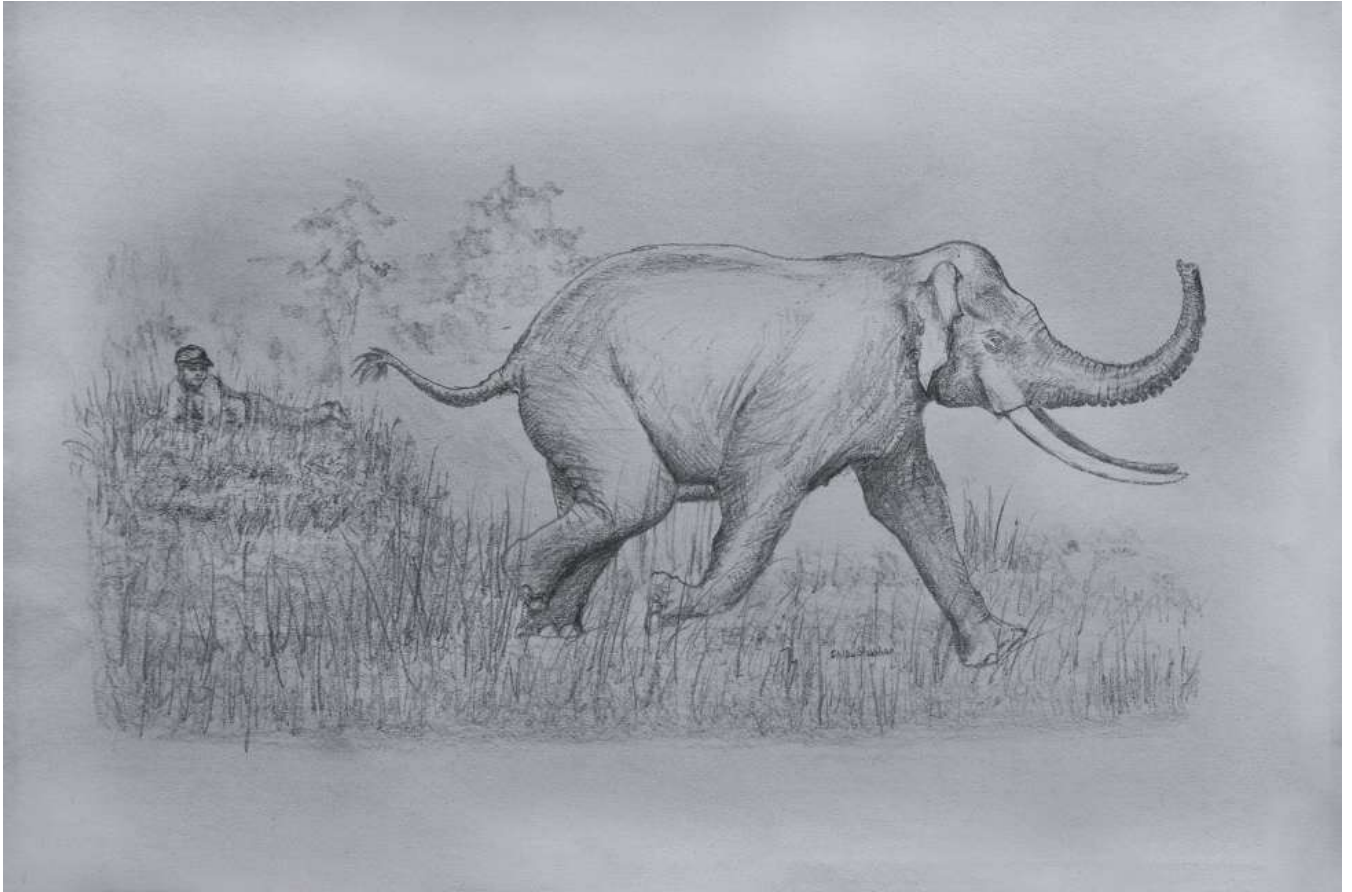
I told the students that I am going to scare away the elephant and if the bull came charging, all of us should scramble up the steep slope which was along the left side of the rau. Then I walked a few steps ahead, stopped and then gently spoke to the bull in English saying that we are getting late for lunch, and he should give way. He stopped scraping the rock for a moment as if listening to us and then again he started scraping and feeding on the rock powder. I had to speak to him twice more, once in Tamil and the other time in my broken Hindi, and finally he stopped scraping the rock, looked in our direction for some time and then hurriedly went up the slope through the dense growth of bushes and stood at the top and watched us walking fast along the rau. We reached the rest house a bit late for the lunch.

One November evening while doing my dhole study, I was returning to my camp in Bandipur. As I neared Sollikatte (katte meaning bund around a pond) which was hardly a kilometer from Bandipur, I slowed down and walked to the bund crouching to see if there were animals in the pond.

I was in my field dress and was wearing a khaki cap. The wind was blowing away from the pond in my direction. Hence, I was confident that animals by the pond would not smell or see me if I remained hidden behind the grassy bund.

There was a sambar doe in the pond which noticed me as I peeped over the pond. I immediately lay flat on the grass on the bund and continued watching the sambar. The doe grew curious. Keeping its body and ears erect and alternately thumping its forefeet, it advanced towards me.

When it was about 10 meters away from me, I heard a large animal brushing against from behind. When I glanced back, I saw a magnificent tusker hardly 30 meters from me, retreating in an alarmed posture with its ears cocked and tail and trunk raised. The tusker had come to the pond, and, since the wind was blowing from the pond towards the elephant, it had clearly smelt me. But as I was lying hidden among the grass, it had failed to spot me. Naturally this had alarmed the tusker prompting it to retreat into the bush from a danger it had smelt but not seen. As soon as the elephant was completely out of sight, I got up slowly. The sambar let out a loud alarm call and bounded back into the jungle, while I walked back to Bandipur in the gathering darkness elated by this encounter.



The tusker smelt me but got frightened and went away when it could not see me.



Dr. A.J.T.Johnsingh

"Thanks are to Mervin Johnsingh for reading through the article and Shibu Baskar for the lovely sketches. The narration of the last encounter comes in page 68 of Walking the Western Ghats (2015) published by Bombay Natural History Society and Oxford University Press."



Elephant Reserves in the State of Nagaland

The state of Nagaland is very rich in biodiversity and a home to number of rare and endangered flora and fauna. In spite of being a small state with 16,579 sq.km. geographical area, the state is endowed with six types of forests. Owing to its diversity in avifauna, Nagaland is referred to as, The Falcon Capital of The World.

Nagaland has an ancient history of tribes whose count sums to be as much as 66 including the sub-tribes. Out of these, 16 are considered as major tribes. With a difference in language, all tribes have a similar leafy dress code, eating habits and traditional laws.

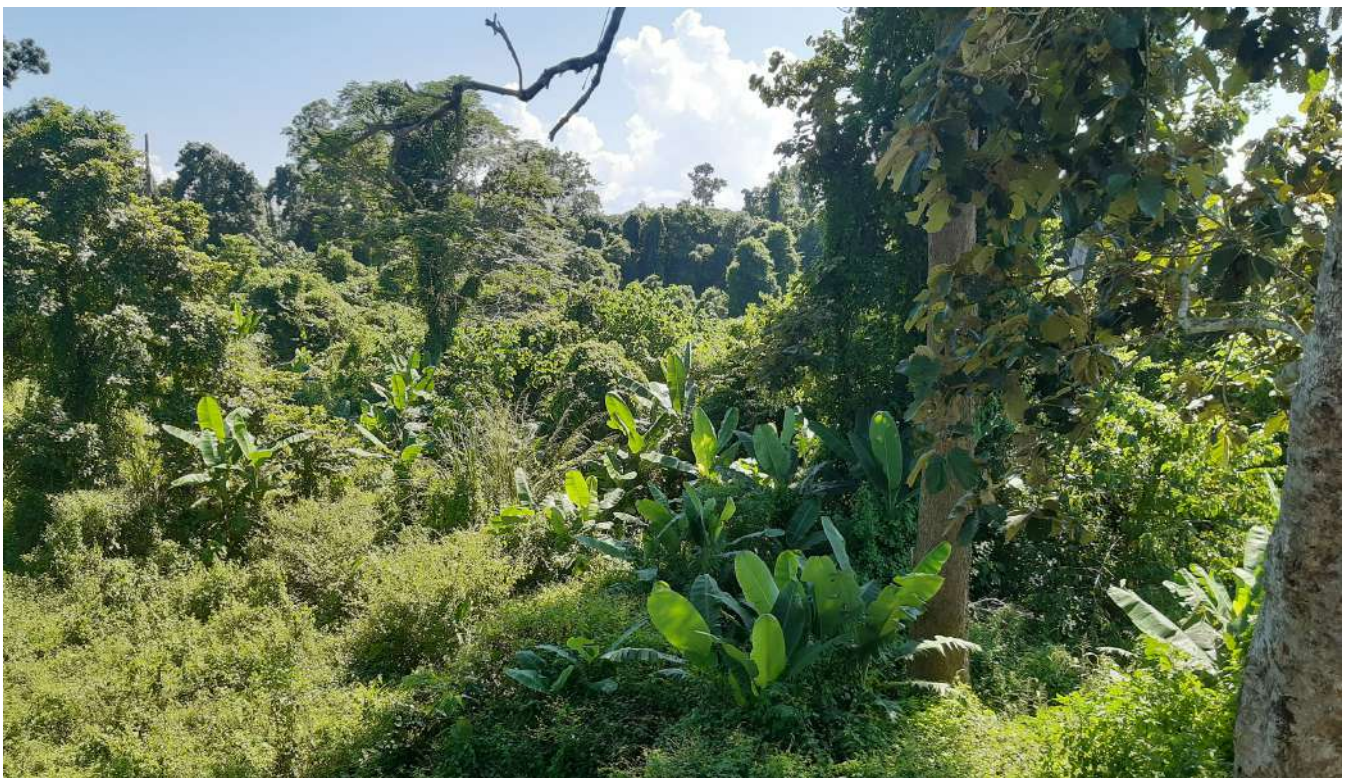
One among the biodiversity hotspots of the country, the state harbours approximately 2431 plants species, more than 490 species of birds, 396 species of orchids and a variety of animals including the largest mega herbivore, the elephants. The state has a forest cover of 77.62% of which 88% is owned by communities.

Elephants are mostly distributed in six districts namely Peren, Wokha, Zunhebeto, Mokokchung, Tuensang and Mon spread across an area of 2047 sq.km. In the last all India synchronized elephant census conducted in 2017, a total of 446 elephants were estimated in Nagaland with an

elephant density/km² of 0.45 which is the second highest density/km² after Karnataka. To conserve and protect the elephants of the state, Nagaland Government has established two Elephant Reserves namely Intanki and Singphan.

Intanki Elephant Reserve:

Located in Peren district of Nagaland, 45kms from Dimapur, the Reserve was notified in 2015 and spreads across 202 sq.km. The Reserve works towards ecorestoration, habitat improvement, creation of water holes and watch towers, engagement of antipoaching squads, engagement of informers, establishment of village level elephant protection committee and organizing awareness programmes. Shifting cultivation and increase in area of cultivation in the fringe areas has resulted in habitat loss, habitat fragmentation and increasing human-elephant conflict. Intanki NP with its continuity with Dhasiri RF, surrounded by the Tuilong and Intanki rivers is one of the best habitats of the elephants in Nagaland. As Dhansiri RF of Assam is contiguous with Assam, the migration of elephants between Intanki and Dhansari RF remains unaffected. However, the Elephant Reserve is disconnected with other elephant bearing areas of Nagaland state due to the human disturbance and settlements.



Intanki Elephant Reserve



Singphan Elephant Reserve



Singphan Elephant Reserve

The Reserve is contiguous with Dhansari RF of Assam which is demarcated by Dhansari River. The movement of elephants across both the Protected Area is unhindered. The elephants move across both the states and thereby leading to fluctuation in elephant numbers in different parts of the year. The Elephant Reserve has good habitat and roads are not motorable in monsoon season. There is only one post in the Northern part of the Elephant Reserve. At present a post is being created in the southern part of the Reserve at Khelma. The extent of human – elephant conflict is less in the fringe villages of the Elephant Reserve. Incidents of crop damage, destruction of temporary huts and plantations by wild elephants occur in the fringed villages of the Intanki Elephant Reserve especially in Khelma, Sailhem, New Nkio, Daniel, Jalukiekam and Jalukie Zangdi. However, there is no report of loss of human life due to HEC for the past few years in the fringe areas of Intanki ER. The major concern to the Elephant Reserve is the presence of Hembrun insurgent camp of NSCN which is only 2-3kms away from the Elephant Reserve.

Singphan Elephant Reserve:

Situated in Mon district. Spread across 23.57 sq.km., the Elephant Reserve is strategically located in contiguity with the Abhaypur Reserve Forest of Assam and movement of elephants occur across both the states. The Reserve has rich biodiversity and the common fauna found are tiger, leopard, sambar, barking deer, black bear, civet etc.

There are no accessible roads through Nagaland to reach Singphan from Dimapur and people need to travel through Assam to reach Singphan. The Reserve is separated from Assam by a road. Though electricity is available in the Assam side, 100m away from the Reserve, there is no electricity in the Elephant Reserve.

A 14km road cuts across the Elephant Reserve which serves as the lifeline for the seven fringe villages (Lower Tiru, Upper Tiru, Oting, Namthai, Hotahoti, Maiching and Vapnyu) located outside the Reserve. This road also is used for transportation of coal from the coal mines located outside the Elephant Reserve in Lower Tiru and Vapnyu. The road, however, remains closed from 6 pm to 6am.

The major threats faced are illegal felling of trees, illegal hunting of deer and illegal fishing in water bodies of the Reserve. The intensity of human – elephant conflict is less in the area. Paddy fields are sometimes raided by elephants and houses are occasionally damaged. No death of humans or elephant killing in retaliation is reported. The elephants are also known to migrate to Assam side for few months in a year. Many villagers also do not report the incidences of crop or house damage either due to lack of awareness of compensation schemes or due to religious sentiments. Permanent as well temporary watch towers are constructed at strategic points to monitor movement of elephants.

Human-elephant conflict is severe in Wokha district and the way forward to conserve elephants in the state is through strengthening of Protected Area Network of the state through the creation of elephant based community reserves; adequate compensatory measures; awareness creation at different forums for coexistence with elephants; tracking and early warning systems and alternate income generating activities.



Elephant Inventory for the Year 2019-20

SL.	ZOO NAME	STATE NAME	SCIENTIFIC NAME	CLOSING STOCK M F U T	FINANCIAL YEAR
1	Bondla Zoo	Goa	<i>Elephas maximus</i>	0 0 0 0	2019-2020
2	North Bengal Wild Animals Park	West Bengal	<i>Elephas maximus</i>	0 2 0 2	2019-2020
3	Alipore Zoological Garden	West Bengal	<i>Elephas maximus</i>	0 2 0 2	2019-2020
4	Mahendra Chaudhury Zoological Park	Punjab	<i>Elephas maximus</i>	0 3 0 3	2019-2020
5	Arignar Anna Zoological Park	Tamil Nadu	<i>Elephas maximus</i>	0 2 0 2	2019-2020
6	Sri Venkateswara Zoological Park	Andhra Pradesh	<i>Elephas maximus</i>	3 3 0 6	2019-2020
7	Centre For Wildlife Rehabilitation And Conservation	Assam	<i>Elephas maximus</i>	2 4 0 6	2019-2020
8	Indira Gandhi Zoological Park	Andhra Pradesh	<i>Elephas maximus</i>	2 2 0 4	2019-2020
9	Veermata Jijabai Bhosale Udyan & Zoo	Maharashtra	<i>Elephas maximus</i>	0 2 0 2	2019-2020
10	Assam State Zoo Cum Botanical Garden	Assam	<i>Elephas maximus</i>	1 3 0 4	2019-2020
11	Sri Chamarajendra Zoological Gardens	Karnataka	<i>Elephas maximus</i>	4 9 0 13	2019-2020
12	Jungle Mahal Zoological Park	West Bengal	<i>Elephas maximus</i>	0 0 0 0	2019-2020
13	Nehru Zoological Park	Telangana	<i>Elephas maximus</i>	1 4 0 5	2019-2020
14	Nandankanan Biological Park	Odisha	<i>Elephas maximus</i>	0 3 0 3	2019-2020
15	Bannerghatta Biological Park	Karnataka	<i>Elephas maximus</i>	10 14 0 24	2019-2020
16	Sanjay Gandhi Biological Park	Bihar	<i>Elephas maximus</i>	0 2 0 2	2019-2020
17	Ch. Surinder Singh Elephant Rescue Centre	Haryana	<i>Elephas maximus</i>	0 5 0 5	2019-2020
18	Kapilash Zoo	Odisha	<i>Elephas maximus</i>	4 1 0 5	2019-2020
19	Bhagwan Birsa Biological Park	Jharkhand	<i>Elephas maximus</i>	0 1 0 1	2019-2020
20	Rajiv Gandhi Zoological Park And Wildlife Research Center	Maharashtra	<i>Elephas maximus</i>	0 2 0 2	2019-2020
21	Great Golden Circus	Gujarat	<i>Elephas maximus</i>	0 0 0 0	2019-2020
22	National Zoological Park	Delhi	<i>Elephas maximus</i>	1 1 0 2	2019-2020
23	Kamla Nehru Prani Sanghralhalaya Zoo	Madhya Pradesh	<i>Elephas maximus</i>	1 0 0 1	2019-2020

Source: Central Zoo Authority



Conservation News

Technical Guide

In India, the infectious diseases on elephants are very less studied. There has been instances of death of elephants due to common infectious diseases like Anthrax, Herpes, Haemorrhagic Septicemia, Tuberculosis etc. However, the disease occurrence has mostly been sporadic either due to human interference or from the domestic livestock residing in fringe areas of the Protected Areas. But in most instances, it has been observed that there is a very little the Forest Department is able to do when an infectious disease outbreak occurs due to lack of knowledge on the cause of the disease or the preventive measures and strategies to contain the spread of infections. In most cases, the treatment regime has been ad hoc and mostly the outcome has been the death of elephants.

In view of this, a Committee has been constituted by this Ministry to develop the Technical Guide on the measures to prevent spread of infectious diseases and development of a SOP for proper collection storage and dispatch of samples. As this is an emerging problem, which needs to be tackled immediately, the Committee has to be proactive in drafting of the Technical Guide and SOP in the time frame assigned and come up with the documents which shall serve as base reference for the Forest Department to refer to in field conditions.



Elephant Census

Nationwide population estimation exercise for wild elephants is conducted every 5 years and elephant data has been compiled since 1993. Till 2012, elephant census was conducted in ad hoc manner with the State Forest Departments conducting the census operation using population estimation methods of their choice and reporting the elephant numbers enumerated to the Ministry. In the last census conducted in 2017, for the very first time, an all India synchronized elephant census was carried out to avoid errors in estimation arising from significant movement of elephants between different states. A meeting with all elephant range states was conducted on 15th April, 2021 and subsequently a meeting with elephant experts dealing with elephant population estimation was conducted on 17th June, 2021.







