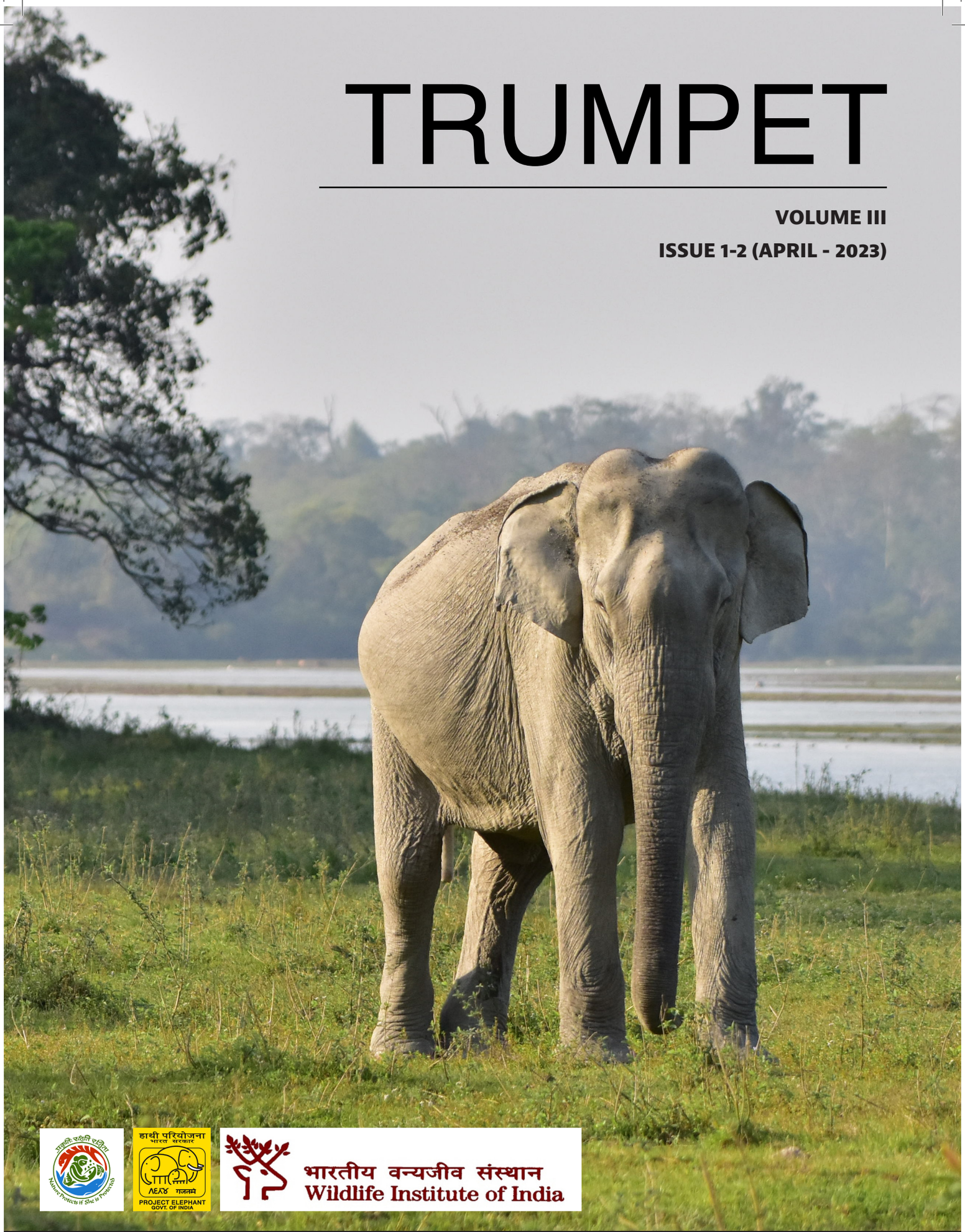

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हाथी परियोजना
भारत सरकार
PROJECT ELEPHANT
GOVT. OF INDIA

भारतीय वन्यजीव संस्थान
Wildlife Institute of India

PROJECT ELEPHANT DIVISION

MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE 2023

Project Elephant Division

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TRUMPET

PROJECT ELEPHANT DIVISION

MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE 2023

CONTENTS

From the Desk of the Director, Project Elephant...

Ramesh Kumar Pandey, IFS

Inspector General of Forests and Director, Project Elephant

It has been 30 glorious years of Project Elephant in India. These 30 years of elephant conservation in India under the aegis of Project Elephant have seen numerous challenges amidst myriad opportunities. The good news is that the elephant population is holding steady in India unlike many other range countries where elephant populations have plummeted and habitats were lost significantly. In India, conflict between people and elephants continues to be a major challenge for elephant conservation. Nevertheless, to mitigate conflict, the MoEF&CC and the State Forest Departments are working together with verve and commitment, and by consciously involving all stakeholders as elephant conservation requires concerted and unified efforts. While emphasis is being placed on improving scientific rigor in efforts towards managing elephant habitats, populations and addressing human–elephant conflict, traditional wisdom and knowledge in elephant lore are also embraced.

In this edition of Trumpet, we have articles on elephant management and conservation written by respective authors based on their invaluable field experience. The Project Elephant under the ample guidance of Hon'ble Minister of EF and Hon'ble Minister of State, EF have undertaken numerous priority tasks during the last few months to advance elephant conservation and management efforts in the country.

For the first-time ever, invaluable contribution of elephant mahouts that are in the frontline of managing our captive elephants was recognized – Commemorate with 30 years of Project Elephant and on the occasion of the world elephant day celebrated in the Periyar Tiger Reserve of Kerala, the Hon'ble Minister, EF felicitated the traditional elephant handlers of Malasar community from the Anamalai Hills, the prestigious Gaj Gaurav award in recognition of their contribution towards elephant management. Further to this, as proposed during the 17th Project Elephant Steering Committee meeting held at Periyar Tiger Reserve, the Project Elephant Division and the Elephant Cell at Wildlife Institute of India conducted a field-based training program for elephant mahouts and handlers from the northern region at Dudhwa Tiger Reserve in Uttar Pradesh during the first week of December 2022. More such training programs have been lined up in the coming months.

Amongst the multitude of activities that Project Elephant and State Forest Departments are currently doing, I must mention that state of Uttar Pradesh has declared the Terai Elephant Reserve in the Dudhwa–Pilibhit landscape adjoining Nepal. The beautiful and productive Terai grasslands of Terai Elephant Reserve will help in securing the transboundary elephant population and also minimize human–elephant conflict in the region.

1. Elephant Reserves of India: An Update

Editorial Team

Rationale

The Government of India launched Project Elephant during 1992 as a centrally sponsored scheme of the Ministry of Environment and Forests with an objective of providing technical and financial support to the states in effectively managing elephants. The overarching aim of the Project Elephant is to ensure long-term conservation of viable elephant populations in their natural habitats in the country. The Elephant Reserves were conceived as a basic management unit for elephant management and conservation in the country. A list of 33 Elephant Reserves have been (Table-1.1) notified. The notified areas include Protected Areas, Reserved Forests, and Protected Forests that fall directly within in the jurisdiction of the State Forest Departments, and also lands falling outside of forests, as appropriate in each site. In this regard, the Elephant Reserves are truly 'landscape units' that wholly recognizes the species' range and other ecological requirements.

The distributional range of elephants in India is about 1,25,000 km². Of this, about 80778.7 km² of area falls within the Elephant Reserves. Thus, about 65% of the elephants' distributional range in the country come under the ambit of the Elephant Reserves. Among the four elephant zones in the country namely Northern, North-East, East-Central and Southern, the Southern region has the largest area covered under the Elephant Reserves (Fig-1.1). It is noteworthy that the southern region also supports the largest Asian elephant population anywhere in the world.

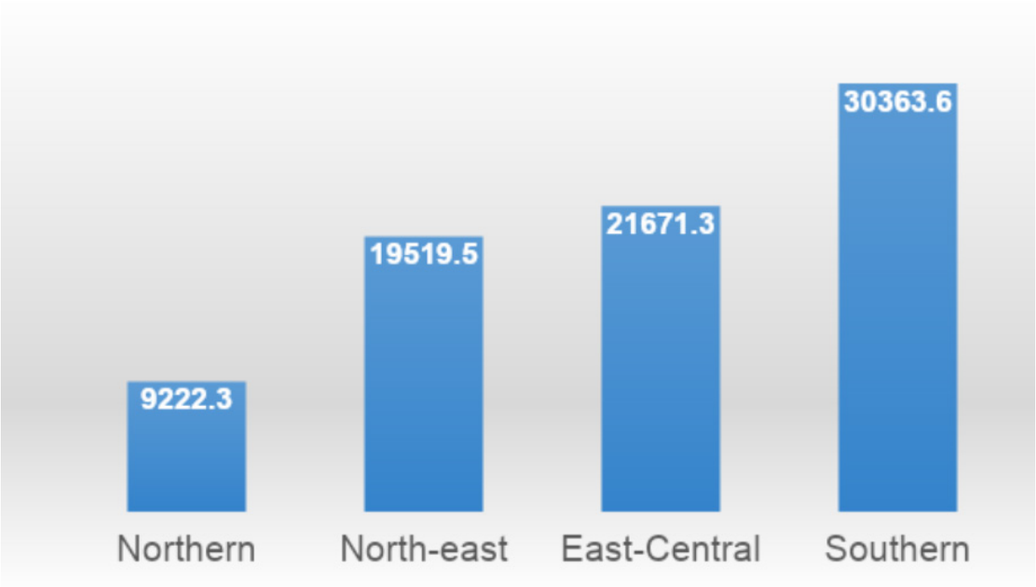
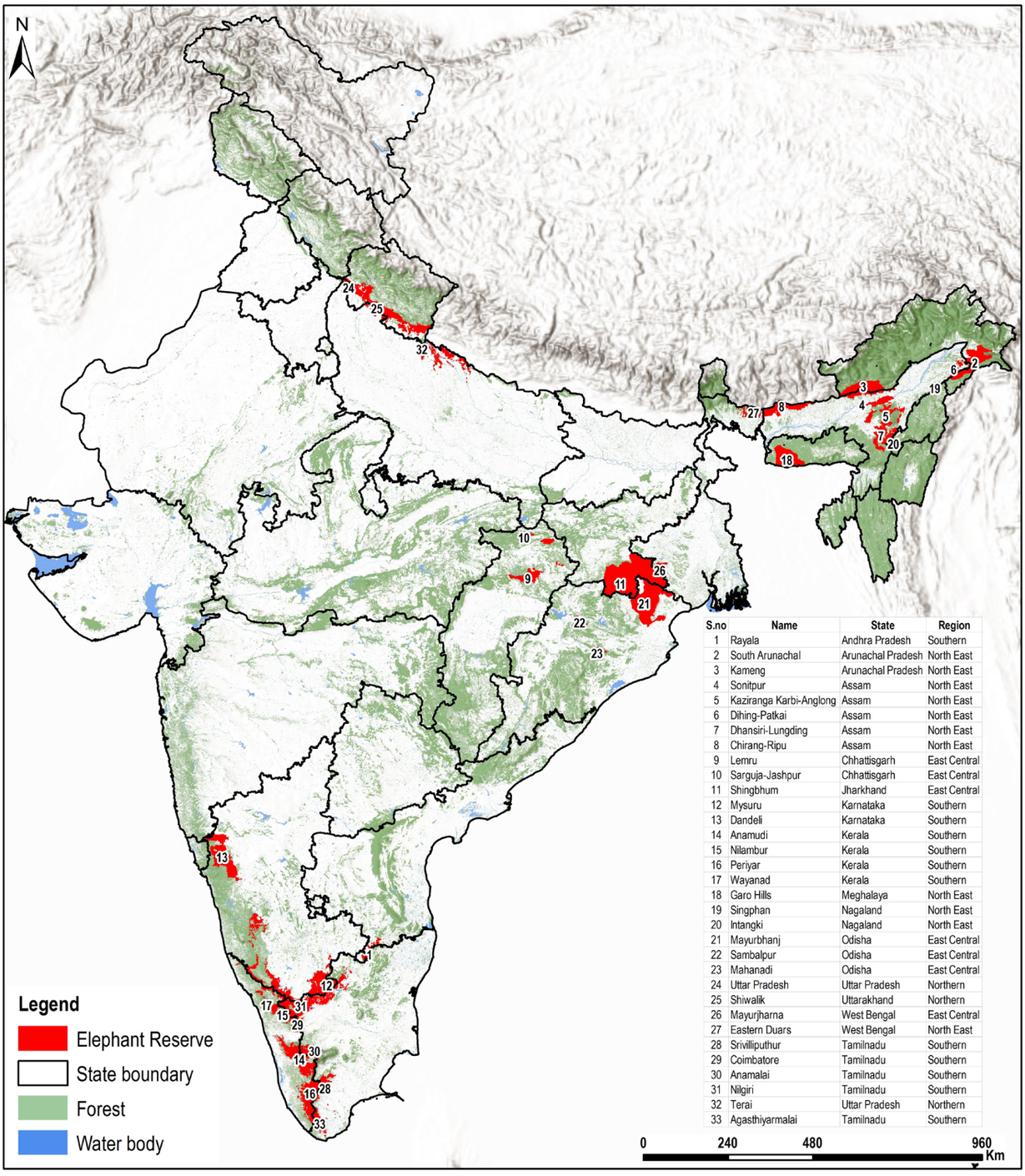


Fig-1.1: The extent of Elephant Reserves across four regions in India



S.no	Name	State	Region
1	Rayala	Andhra Pradesh	Southern
2	South Arunachal	Arunachal Pradesh	North East
3	Kameng	Arunachal Pradesh	North East
4	Sonitpur	Assam	North East
5	Kaziranga Karbi-Anglong	Assam	North East
6	Dihing-Patkai	Assam	North East
7	Dhansiri-Lungding	Assam	North East
8	Chirang-Ripu	Assam	North East
9	Lemru	Chhattisgarh	East Central
10	Sarguja-Jashpur	Chhattisgarh	East Central
11	Shingbhum	Jharkhand	East Central
12	Mysuru	Karnataka	Southern
13	Dandeli	Karnataka	Southern
14	Anamudi	Kerala	Southern
15	Nilambur	Kerala	Southern
16	Periyar	Kerala	Southern
17	Wayanad	Kerala	Southern
18	Garo Hills	Meghalaya	North East
19	Singphan	Nagaland	North East
20	Intangki	Nagaland	North East
21	Mayurbhanj	Odisha	East Central
22	Sambalpur	Odisha	East Central
23	Mahanadi	Odisha	East Central
24	Uttar Pradesh	Uttar Pradesh	Northern
25	Shiwalik	Uttarakhand	Northern
26	Mayurjharna	West Bengal	East Central
27	Eastern Duars	West Bengal	North East
28	Srivilliputhur	Tamilnadu	Southern
29	Coimbatore	Tamilnadu	Southern
30	Anamalai	Tamilnadu	Southern
31	Nilgiri	Tamilnadu	Southern
32	Terai	Uttar Pradesh	Northern
33	Agasthiyarmalai	Tamilnadu	Southern

Fig-1.2: Map of the Elephant Reserves in India

Table-1.1: Elephant Reserves of India

S.No	Elephant Reserve	State	Zone	Area (in Km²)
1	Sarguja-Jashpur	Chhattisgarh	East Central	1143.3
2	Lemru	Chhattisgarh		1995.0
3	Singhbhum	Jharkhand		13440.0
4	Mahanadi	Odisha		1038.3
5	Mayurbhanj	Odisha		3213.8
6	Sambalpur	Odisha		426.9
7	Mayurjharna	West Bengal		414.0
8	Kameng	Arunachal Pradesh	North-East	1892.0
9	South Arunachal	Arunachal Pradesh		1957.5
10	Chirang-Ripu	Assam		2600.0
11	Dhansiri-Lungding	Assam		2740.0
12	Dihing-Patkai	Assam		937.0
13	Kaziranga-Karbi Anglong	Assam		3270.0
14	Sonitpur	Assam		1420.0
15	Garo Hills	Meghalaya		3500.0
16	Intanki	Nagaland		202.0
17	Singphan	Nagaland		23.5
18	Eastern Dooars	West Bengal		977.5
19	Uttar Pradesh	Uttar Pradesh	Northern	744.0
20	Shivalik	Uttarakhand		5406.0
21	Terai	Uttar Pradesh		3072.3
22	Rayala	Andhra Pradesh	Southern	766.0
23	Dandeli	Karnataka		2321.0
24	Mysuru	Karnataka		8055.9
25	Anamudi	Kerala		3728.0
26	Nilambur	Kerala		1419.0
27	Periyar	Kerala		3742.0
28	Wayanad	Kerala		1200.0
29	Anamalai	Tamil Nadu		1457.2
30	Coimbatore	Tamil Nadu		565.5
31	Nilgiri	Tamil Nadu		4662.4
32	Srivilliputhur	Tamil Nadu		1249.1
33	Agasthiyamalai	Tamil Nadu		1197.5
Total area (in Km²)				**80778.7**

Herd of wild elephants in the Shivalik Elephant Reserve in Uttarakhand.
Pic: N. Lakshminarayanan, WII

2. Assam: Heavenly Kaziranga as abode of iconic mega-herbivores: India's Pride and Assam's Gift to the world

Mahendra K. Yadav, IFS

PCCF & HoFF, Government of Assam

Africa is reputed for offering incredible wildlife experience, particularly in the Savannah region where the major attraction comprises of the large mammals including the African lions, African savannah elephants, African rhinos, giraffe, hippopotamus along the river fronts. Besides these animals, there are also large herds of migratory herbivores like the wildebeest, cape buffalo, impala and many others. Africa is neither unique in offering this great wildlife experience, nor is India way behind in terms of the diversity of wildlife that the country harbors. India is a haven for mammals. The country harbors 15 out of the forty species of wild cats in the family Felidae that ranges from the tiny rusty spotted cat weighing just a kilogram to tiger and lion that can reach over 250 kilograms as adults. India is also rich in the diversity of terrestrial large herbivores. We have nearly 39 species of terrestrial herbivores across the length and the breadth of the country. These large herbivores occur in a variety of habitats across India ranging from the snow-clad mountain peaks of the Himalayas; the Thar desert in the west India, whole of peninsular region, the moist evergreen forests of the Western Ghats and the North-East, as in the damp and humid flood plains of our great rivers. Research works in the tropical Indian forests show that the recorded ungulate (hoofed herbivores) biomass is similar to that of herbivore biomass reported from famous African protected areas like the Kruger and Masai Maara. Particularly in the flood plains of the Himalayan rivers like the mighty Brahmaputra, the herbivore biomass is exceptionally high as many mega-herbivores occur in sympatry. The Kaziranga National Park of the Assam is a case in point.

The Indian Himalayan region acts as a watershed for the three mighty rivers namely the Indus, the Ganga and the Brahmaputra. These three major river systems and their tributaries effectively carry most of the water from the Indian Himalayas. As the Himalayas are the youngest mountain ranges in the world and are still growing, and consequently highly fragile, the Himalayan rivers carry huge loads of silt forming fertile alluvial pans when the descend to the plains and fan out. Being the largest Indian river in terms of volume of water drained, the mighty Brahmaputra and its large tributaries form and maintain extensive alluvial grasslands through its course in the State of Assam. Brahmaputra is essentially the elixir of life in the Assam plains. These damp grasslands are highly dynamic ecosystems. Floods nourish and shape these grasslands. The remnant well-protected grasslands are highly productive and thus, harbor an astounding variety of wildlife that occur in very high densities. Kaziranga is one of the most important Protected Areas in the Brahmaputra plains comprising of large swathes of alluvial grassland ecosystem. Besides grasslands, the natural vegetation of the Kaziranga National Park also comprises of forests of mixed deciduous and evergreen types. Kaziranga is located along the south bank of Brahmaputra. The total area of the Kaziranga National Park is 1090.0 km2. The park is also connected to the hill forests of the Karbi Anglong through tenuous corridors, which are critical for sustaining the wildlife of Kaziranga.

Kaziranga supports an impressive assemblage of large herbivores. It includes the one-horned rhinoceros (Rhinoceros unicornis), Asian elephants (*Elephas maximus*), Asiatic wild buffalo (*Bubalus arnee*), the eastern swamp deer (*Rucervus duvaucelii)*, the hog deer (*Axis porcinus*), Indian gaur (Bos gaurus), sambar (Rucervus unicolor), barking deer (*Muntiacus muntjac*), and the wild pigs (*Sus scrofa*). Among the mega herbivores, Kaziranga is particularly famous for the one-horned rhinoceros. The park comprises of most than 2/3rd of the global population of the species, and therefore plays a crucial role in its long-term conservation prospects. During 1908, Kaziranga comprised of only a very few rhinoceros and the species was pushed to the brink of extinction.

With utmost dedication, perseverance, and commitment of the field staff in protecting rhinos from the ruthless poachers that are heavily armed with modern weapons, the rhinos of Kaziranga were rescued from extinction quite miraculously. With insatiable demand for the rhino body parts, particularly the horns for its alleged aphrodisiac properties, the poachers from the criminal syndicates posed major threats for rhinos and Kaziranga's other precious wildlife. The park had lost the lives of several frontline staff who braved poachers against all odds with a sole mission of saving Kaziranga's wildlife. But for their committed efforts, Kaziranga would not be what we see and enjoy today. The Rhino recovery in the Kaziranga is one of the greatest success stories not only in India, but in the whole world. In the present we have a healthy rhino population of nearly 2600 individuals in the park according to the 2022 State of the Rhino report by International Rhino Foundation.

Similar to rhinos, Kaziranga also holds more that 60% of the extant population of the Asiatic wild buffalos. These animals are highly threatened due to myriad factors including genetic hybridization with the domestic buffaloes, diseases, and habitat loss. Kaziranga is a safe haven for the remnant population of the wild buffaloes. The buffaloes are essentially animals of swamps and have evolved unique adaptations to occur in water-logged areas. Kaziranga is the best place in the whole world to observe Asiatic wild buffaloes.

Elephants are omnipresent in the Kaziranga landscape. In fact, Assam holds the second largest population of elephants in India after Karnataka. Several long-term ecological studies on elephants have been carried out in Kaziranga. The park also has numerous captive elephants under human care that are effectively used to patrol the park, which is otherwise not navigable and also to carry tourists upclose to wildlife. The wild elephants frequently migrate between Kaziranga and the Karbi Anglong, particularly when the National Park area gets flooded by monsoon waters of the Brahmaputra. The corridor has become tenuous and is resulting in deflection of elephants into human–use areas causing human–elephant conflict. Securing the elephant corridors between Kaziranga and Karbi Anglong would be an important conservation strategy for Kaziranga. The functional corridor would be critical would be critical for safe migration of animals when the park gets inundated annually.

Although famous for its mega-herbivores, Kaziranga holds the highest density of tigers recorded anywhere in the world. The park supports a density of about 15 to 18 tigers per 100 km² of area. During the dry season, when the grass cover is low, tiger sightings increase significantly.

Metamorphosis of the Kaziranga into a finest wildlife preserve in India

. 1905: Part of the present-day Kaziranga was declared as a reserve forest primarily to enhance protection to the one-horned rhinoceros

. 1960: The area was redesignated as "Kaziranga Game Sanctuary". Hunting of rhinoceros was highly regulated

. 1950: Imperial Forest Service officer Patrick D. Stracey renamed Kaziranga Game Sanctuary into Kaziranga Wildlife Sanctuary so as to prioritize conservation

. 1968: Assam Forest Department declared Kaziranga as a National Park – according highest legal status in terms of protection to the area

. 1985: The Kaziranga National Park was declared as the World Heritage Site by the UNESCO

. 2006: Kaziranga National Park and the surrounding important areas were declared as a Tiger Reserve

Conclusion

It is fitting that the MoEFCC has chosen Kaziranga to celebrate Gaj Utsav, aimed at showcasing intricate relationship between elephants and people in India. The wild elephants that occur in Kaziranga and the captive elephants maintained by the Forest Department stand testimony to the Nation's commitment to ensure safe habitat for elephants in the wild and also welfare for captive elephants. Protected areas like the Kaziranga that perform a critical function of maintaining intact biodiversity and also at the sametime provide various ecosystem services directly to mankind are India's pride and Assam's priceless gift to the world.

3. Ecological Significance and Strategic Importance of the Terai Elephant Reserve in Uttar Pradesh

Ramesh Kumar Pandey, IFS[1] & Satya Prakash Yadav[2] IFS

[1]Inspector General of Forests and Director, Project Elephant, MoEF&CC, Government of India

[2]Additional Director General of Forests (PE&PT) & Member Secretary (NTCA), MoEF&CC, Government of India

Introduction

In a strategic move towards conserving elephants in India, Government of Uttar Pradesh and the MoEF&CC, had declared the Terai Elephant Reserve spanning 3049.40 km² in the Dudhwa and Pilibhit landscapes along the flood plains of River Sarada. Declaration of the Terai Elephant Reserve in Uttar Pradesh would be a major booster in highlighting the critical importance of remnant alluvial plains of the upper Gangetic plains of the river Ganga. While most of the areas notified as Terai Elephant Reserve already fall in the network of Protected Areas, the importance of Elephant Reserve notification lies in bringing the crucial "landscape approach" to conservation that duly acknowledges the importance of multiple-use areas surrounding the Protected Areas in facilitating seasonal migration and dispersal of wildlife, including elephants.

Uniqueness of the Terai Landscape

The Terai is broad strip of predominantly marshlands located south of the Himalayan mountains in northern India and southern Nepal. Geologically speaking, the Terai spans between River Yamuna in the west and River Brahmaputra in the east. The Himalayan rivers – both glacial and rainfed fans along the Terai after descending from the mountains. As the Himalayan mountains are relatively young and still growing, these rivers bring in voluminous loads of alluvial soil that are deposited in the Terai plains. High water table and rich alluvial deposits have led to growth of luxuriant vegetation in the Terai plains. The Terai plains are amongst the most fertile regions in the entire world and thus, even the remnant areas are extremely rich in biodiversity. Among the major faunal groups that occur in the Terai landscape, tiger (*Panthera tigris*), one-horned rhinoceros (*Rhinoceros unicornis*), swamp deer (*Cervus duvaucelii*), hog deer (*Axis porcinus*), hispid hare (*Caprolagus hispidus*) and others. The Terai landscape is also rich in bird life supporting remnant populations of Bengal florican (*Houbaropsis bengalensis*) and the rare swamp francolin (*Ortygornis gularis*).

Elephants in the Terai Elephant Reserve

The Terai landscape supports the northernmost regional population of elephants in India. The elephants in northern regional population occurs mostly in the Shivalik and Bhabar tract as the

Terai tract has suffered significant losses. Yet, the Terai tract is crucial for elephants as they are more productive than other areas. Even a relatively small Terai landscape can harbor elephants die to its superior habitat productivity.

An adult one-horned rhino (Rhinoceros unicornis) in the Dudhwa National Park. Successful reintroduction of the critically endangered rhino is one of the remarkable conservation success stories in India. Pic: N. Lakshminarayanan, WII

One of the large Terai grasslands within Dudhwa National Park
Pic: N. Lakshminarayanan, WII

Thus, from ecological and evolutionary perspectives, Terai Elephant Reserve is critical for elephants as effective long-term species conservation calls for securing the remnant populations in different representative habitats rather than focusing on just a few habitat types. The Terai Elephant Reserve comprises of Dudhwa and Pilibhit Tiger Reserves that also include the Kishanpur and Katerniaghat Wildlife Sanctuaries (Fig – 3.1). Administratively, the Terai Elephant Reserve falls within Lakhimpur-Kheri and Bahraich districts in northern Uttar Pradesh bordering Nepal. Elephant movement in Terai Elephant Reserve is transnational spanning India and Nepal. Thus, conserving the elephant population in the Terai Elephant Reserve essentially entails active coordination and mutual support between Nepal and India.

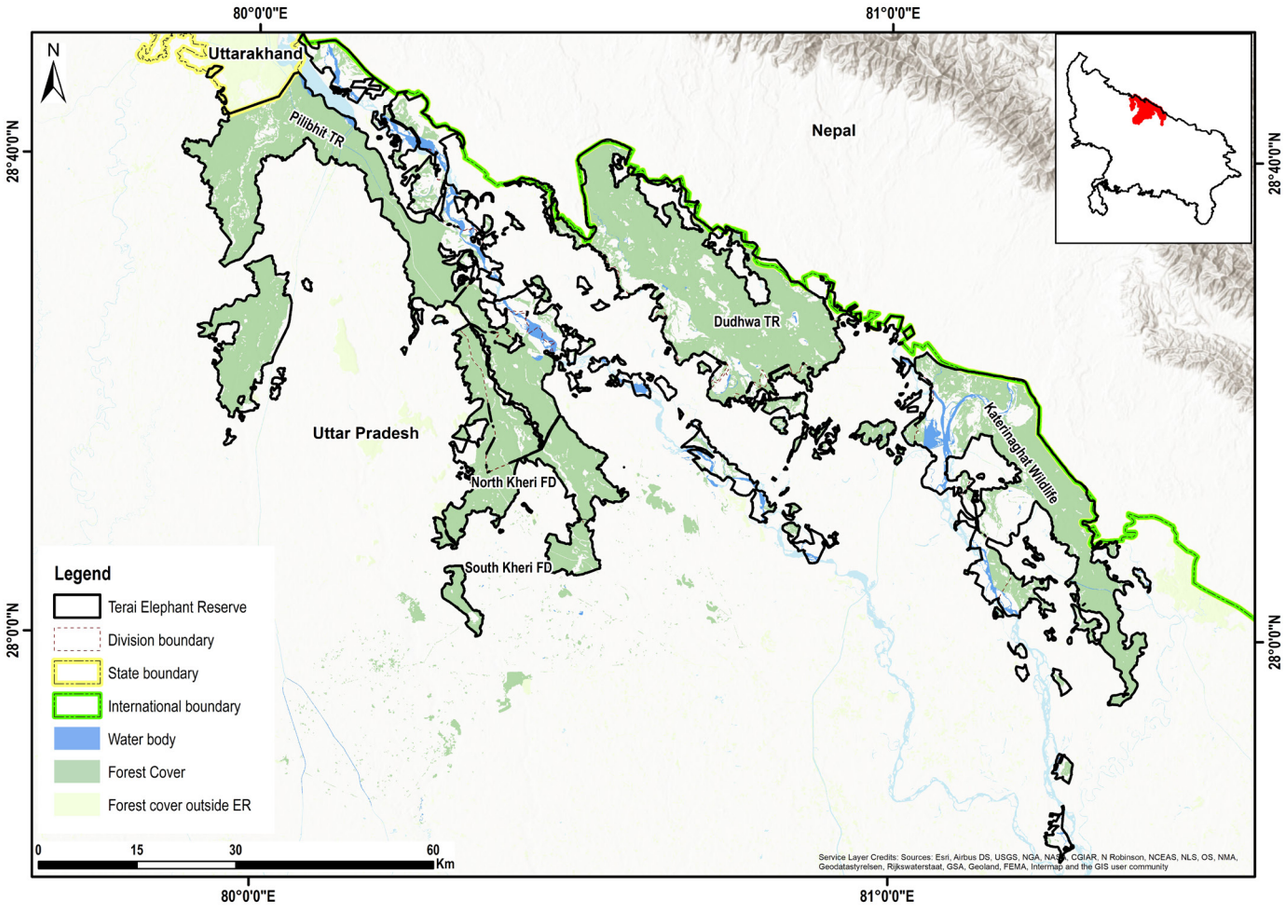


Fig-3.1: Terai Elephant Reserve, Uttar Pradesh

Importance of Corridors in the Terai Elephant Reserve

Habitat connectivity is essentially maintained by network of "wildlife corridors", which are conduits of habitat that allow animal permeability in an otherwise human-use area. Loss of corridors could compress elephants within small Protected Areas and consequently exacerbate habitat degradation eventually resulting in conflict in the surrounding human-use areas. As elephants are wide ranging species, even some of our largest Protected Areas are

still inadequate for them. This is true in case of some of the Protected Areas along the Indian Terai region. Well maintained corridors minimize the perils of habitat isolation for wildlife, increase the viability of their populations and help in mitigating conflict with people. Thus, harboring viable population of elephants and other wildlife, and at the same time minimizing conflict with people in the Terai Elephant Reserve depends on maintaining habitat connectivity between forests. The Project Elephant Division in collaboration with the State Forest Departments is currently involved in the process of identifying, and if already identified, ground-truthing elephant corridors across India. The task has already been completed in Uttar Pradesh and is being carried out in the neighboring Uttarakhand currently. One of the important corridors that facilitate wildlife movement between Uttar Pradesh and Uttarakhand connecting Terai Elephant Reserve of the former with the Shivalik Elephant Reserve of the latter is the Kilpura-Khatima corridor. If this corridor is restored, the elephant of Terai Elephant Reserve can easily move into Shivalik Elephant Reserve thereby increasing the gene flow and viability of an otherwise isolated elephant population in the Kumoan region of Uttarakhand occurring predominantly in the Nandhour Wildlife Sanctuary. The Kilpura–Khatima corridor is critical for tigers as well.

Conclusion

Declaration of the Terai Elephant Reserve in Uttar Pradesh is a significant step forward in demonstrating India's commitment towards elephant conservation in the crucial transboundary Indo-Nepal area. The Dudhwa Tiger Reserve is undoubtedly the green jewel of Uttar Pradesh. The Park not only draws people for its splendid natural beauty and rich wildlife, but also recognized as an important water shed for the Sarada river system of the Gangetic plains. Dudhwa landscape is already famous for successful reintroduction of the greater one-horned rhinoceros and recovering the population of the swamp deer. Tigers have also staged a remarkable recovery in Dudhwa landscape. The landscape would also remain as one of the last remaining Terai habitats for the Asian elephants.

4. Agasthiyamalai Elephant Reserve: A Biodiversity Repository in the Southern Western Ghats under the Umbrella of Asian Elephants

V. Naganathan, IFS

Additional Principal Chief Conservator of Forests (APCCF)

Government of Tamil Nadu.

Agasthiyarmalai Elephant Reserve – the 5th Elephant Reserve in the state of Tamil Nadu is a recognized Natural World Heritage site in 2012 and forming part of Agasthiyarmalai Biosphere Reserve, which has been included in the World Network of Biosphere Reserves in 2016. Agasthiyarmalai Elephant Reserve encompasses Kalakad Mundanthurai Tiger Reserve (KMTR) and part of Kanniyakumari Wildlife Sanctuary (KKWLS) in Tirunelveli and Kanniyakumari Districts in Tamil Nadu with a total extent of 1197.50 km² which are contiguous with Nellai Wildlife Sanctuary in Tamil Nadu and Neyyar, Peppara and Shendurney Wildlife Sanctuaries in the State of Kerala.

Elephants in the Agasthiyarmalai landscape occur largely within Protected Areas of Kalakad-Mundanthurai Tiger Reserve, Kanniyakumari WLS & Nellai WLS in Tamil Nadu part and in Protected Areas like Shendurney, Peppara, Neyyar in the State of Kerala. The Periyar–Agasthiyarmalai landscape with an estimated population of 2000 elephants distributed across 6000 km² comprises the southern part of the Periyar plateau, and its eastern spur, the Varushanad and Meghamalai Hill ranges, the Achankovil Valley, the Agasthiyarmalai and Mahendragiri hill ranges on the southern side.

There are four declared Elephant reserves in Tamil Nadu viz., Nilgiri Elephant Reserve, Nilambur-Coimbatore Elephant Reserve, Srivilliputhur Elephant Reserve and Anamalai Elephant Reserve. The Agasthiyarmalai Elephant Reserve, fifth Elephant Reserve of the State of Tamil Nadu recently declared (12th August, 2022) supports a good population of residential and migratory elephants. Agasthiyarmalai Elephant Reserve is home to approximately 100 to 150 elephants. The initiative of establishing Agasthiyarmalai Elephant Reserve as the fifth elephant reserve in the State of Tamil Nadu will not only help in conservation of elephants and their habitats but it will also help in awareness creation among the local communities about the importance of elephant conservation in the region.

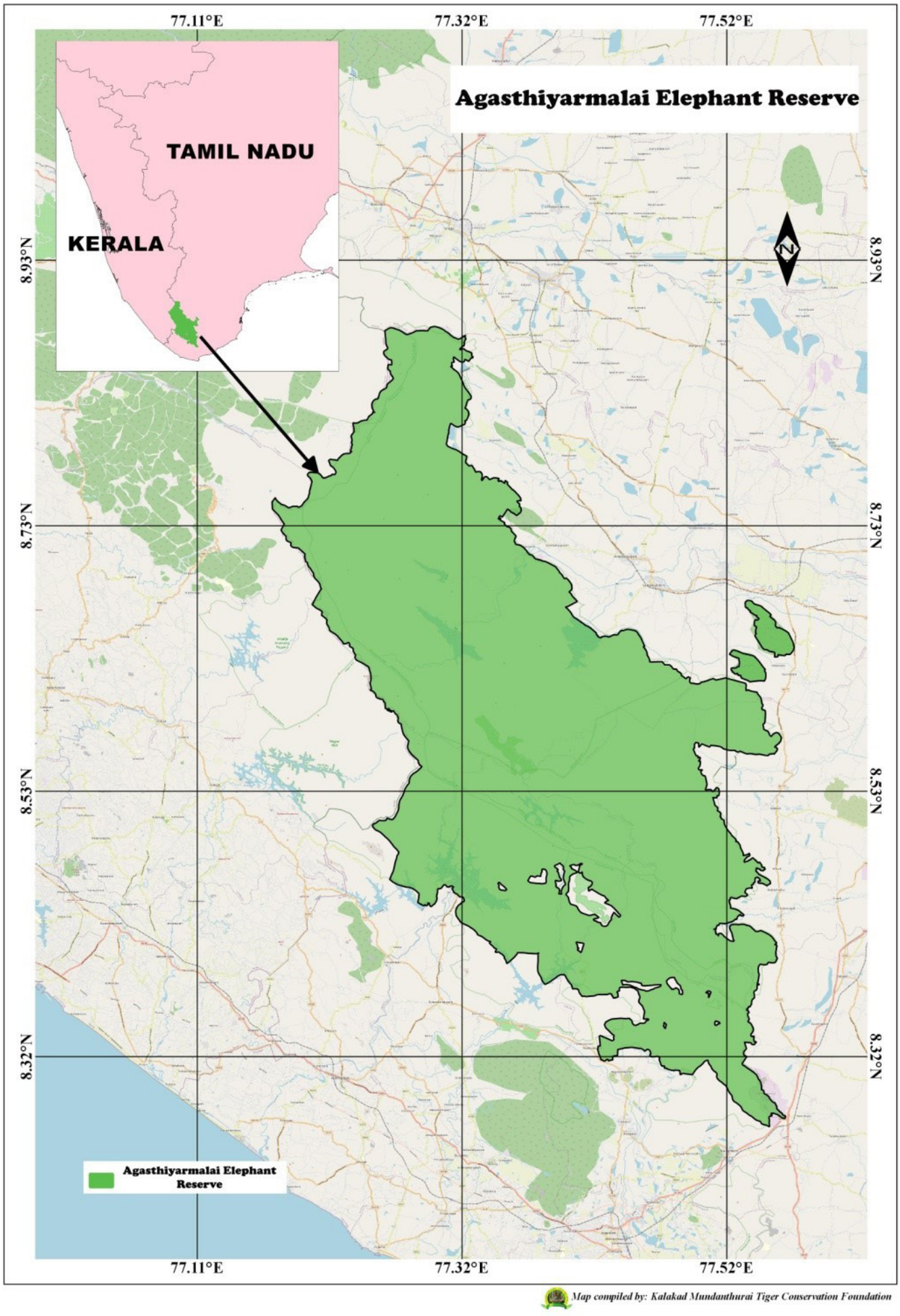


Fig-4.1: Agasthiyarmalai Elephant Reserve in Tamilnadu

Agasthiyarmalai Elephant reserve is a rare repository of biodiversity marked by high endemism by dint of wide range of natural web of ecosystems and is a recognized as one among the global hotspot of biodiversity. The richness and diversity of the flora of this region are due to the variation in its elevation, which ranges from sea level to about 1800m; tropical climate, heavy rainfall and the mountainous terrain. There are 11 forest types including 400 sq.km of contiguous tract of wet-evergreen forest plays an important role in harboring endemic wildlife and including breeding populations as well. The area is also the southern-most tiger habitat in the Western Ghats and whole of India. The plateau region in the reserve is among the richest region in flora encompassing diverse types of forests. The area is biodiversity rich and in addition to tigers, home to the threatened species viz., Indian gaur (*Bos gaurus*), elephant (*Elephas maximus*), leopard (*Panthera pardus*), wild dog (*Cuon alpinus*) Indian rock python (*Python molurus*), lion-tailed macaque (*Macaca Silenus*), mouse deer (*Moschiola indica*), Nilgiri tahr (*Nilgiritragus hylocrius*), sambar (*Cervus unicolor*) and several other species of lesser mammals. Further to this, the elephant reserve area harbors 2254 species of higher plants, which include about 405 endemics. This area is home to about 79 species of mammals, 88 species of reptiles, 45 species of amphibians, 46 species of fishes and 337 species of birds. All the five primates reported in the Western Ghats namely Bonnet monkey (*Macaca radiata*), common langur (*Semnopithecus entellus*), Nilgiri langur (*Semnopithecus johnii*), lion-tailed monkey, and slender loris (*Loris tardigradus*) are present in the elephant reserve.

The elephant presence has been reported all across the Agasthiyarmalai elephant reserve. However, a large percentage of elephant occurrence is in the altitudinal range spanning 600-900m. The evergreen forage species and reed belts start at an altitude of 600 meters and this could explain the reason for relatively high intensity of habitat usage of elephants above 600 meters. Lately, elephant movements in the reserve have been observed frequently in the Mundanthurai Plateau, which was rare in the past. Therefore, management of the habitats of the reserve suitable for elephants are being carried out. Ochlandra reeds and grasslands cover approximately equal area in the higher reaches of the Agasthiyarmalai elephant reserve. Ochlandra reeds provide the best feeding grounds for the elephants in the reserve. Along the higher slopes of the various mountain ranges, above 900 m extensive areas are covered with Ochlandra brandisii and Ochlandra travancorica reeds forming impenetrable thickets with 3 to 5 m high. Streams play a part in the dissemination of the seeds of the reeds, many of the streams originating in reed areas and flowing through sholas containing a dense growth of reeds on their banks. This type constitutes an important niche for the elephants.

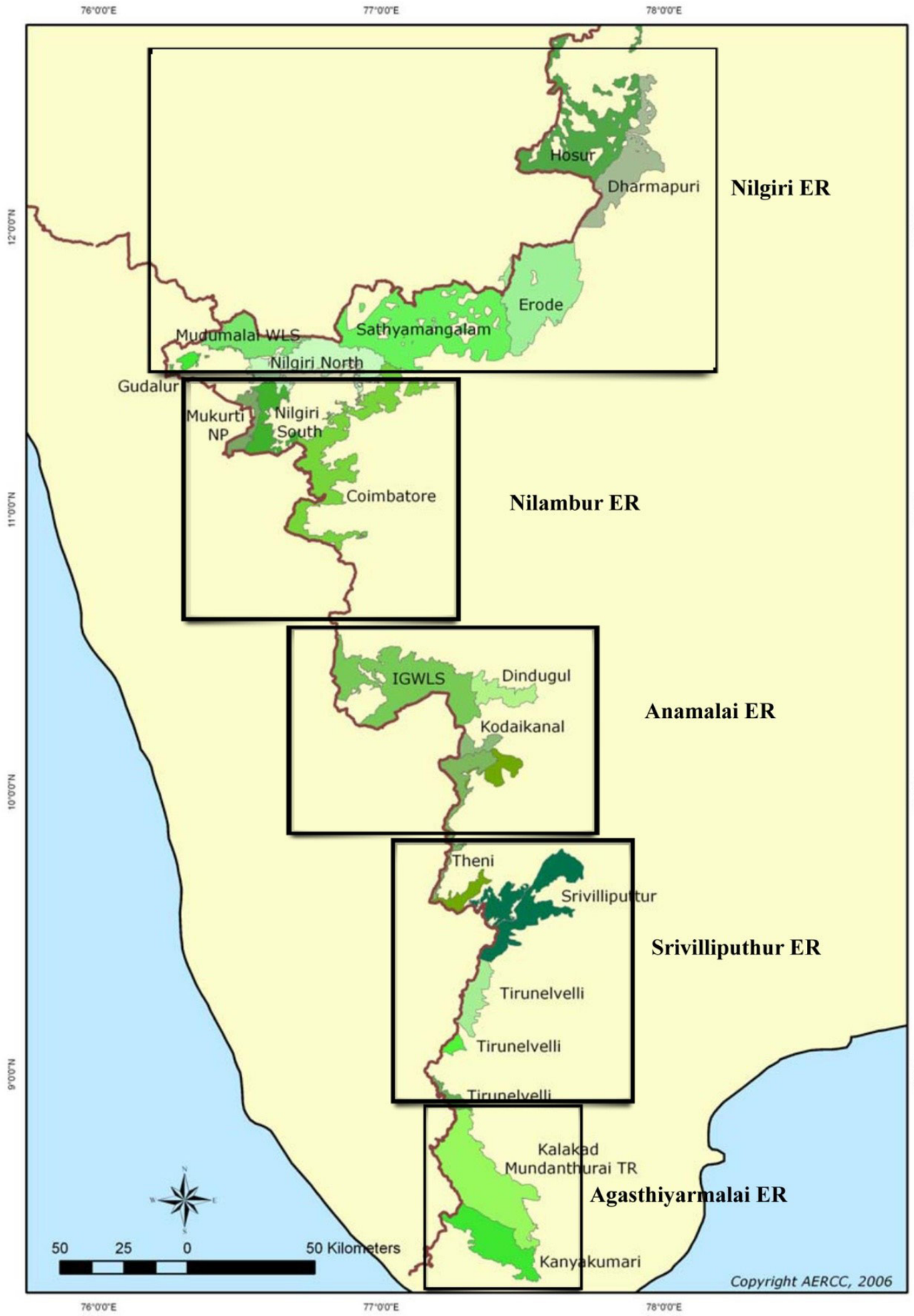


Fig-4.2: Elephant Reserves of Tamilnadu

The lush forests of the elephant reserve are the source of more than 17 rivers including the perennial river Tamirabarani. There are 15 dams situated in and around the elephant reserve which supports the irrigation and drinking water needs for people living in five districts (Tirunelveli, Tenkasi, Kanniyakumari, Thoothukudi and Viridhunagar) in Tamil Nadu. An extent of around 143016.88 acres of agricultural lands is being irrigated with water sources originating from Agasthiyarmalai Elephant Reserve. Around 528 villages are located in and around the elephant reserve Conservation of elephants through people participation is being carried out in the fringe areas of the elephant reserve through various eco-development programmes. There are around 300 Village Forest Committees established in the fringe areas with more than 135212 beneficiaries who are the guardians of elephants in this reserve and they contribute in different ways for conservation of elephants.

In the Agasthiyarmalai landscape approximately 90% of the landscape has already been incorporated under the existing PA network. On the other hand, in the Periyar Landscape, 2336 km2 of contiguous forest exist outside the current network of PAs. These two forest complexes are separated by the Shencottah gap. The landscape on the northern side (Periyar plateau) maintains one of the most intact elephant range in southern India. This area is believed to harbour about 2000 elephants and is one of the potential landscapes for the long-term conservation of the species. This population is genetically more diverse and distinct from the much larger elephant population further north in the Western Ghats. This region is also known for its rich biodiversity. A corridor which elephants have stopped using for the last 40 or so years is the Ariankavu Pass between the Ashambu Hills (south of the Pass) and Idukki - Periyar hills (north of the Pass) in southern India. The Ashambu Hills, south of the Pass, encompasses the Kalakad Mundanthurai Tiger Reserve and Kanniyakumari WLS in Tamil Nadu, and Neyyar WLS, Peppara WLS and Shendhurney WLS in Kerala.

The development of various non-forest elements along the Shencottah Gap such as the establishment of Madurai-Kollam National Highway 208, a 400 KV High Tension power line and railway line cutting across the landscape on the east-west axis, and development of the settlement/cultivations and large scale commercial plantations all along NH 208 have broken the forest contiguity to a larger extent, especially in areas with gentle altitudinal gradient where elephants and other animal movement was taking place previously.The financial assistance from the Project Elephant Division, Government of India will facilitate the conservation of elephants through protection of elephant habitats and the connectivity of the Agasthiyarmalai Landscape through restoration of the Ariyankavu pass which is the need for the hour for genetic dispersal of the Asian Elephant in this landscape and will link the populations to other areas in Srivilliputhur–Megamalai Tiger Reserve and with the Periyar landscape.
The initiative of declaring the Agasthiyarmalai Elephant Reserve as the 5th Elephant Reserve by the State of Tamil Nadu is a major effort for effective conservation of Asian elephants

through enhanced and ensured protection of elephants, restoration of habitat for movement of free ranging elephants through removal of alien invasive species and grassland improvement measures, mass awareness creation to the local people and line departments about the conservation of elephants in the fringe areas around the Agasthiyarmalai elephant reserve. Community based elephant conflict management in the fringe areas of the Agasthiyarmalai Elephant reserve will also result in reduced conflict situations through co-existence between elephants and communities. It is noteworthy to mention that Tamil Nadu has now become the second state with more number of elephant reserves in the country after the declaration of the biologically and ecologically unique areas as Agasthiyarmalai Elephant Reserve.

5. Restoration of the Critical Elephant Corridor in the Shengottah Gap of the Western Ghats

Srinivas Vaidyanathan

Foundation for Ecological Research,
Advocacy and Learning Tamil Nadu

This year on August 12th, while celebrating the world elephant day, 1,200 km² in the southern-most tip of the western Ghats in the state of Tamil Nadu was notified as the Agasthiyamalai Elephant Reserve. With the declaration of the Agasthiyamalai Elephant Reserve, most parts of the Southern Western Ghats come under the ambit of Elephant Reserves. Nearly two decades ago, about 5,000 Km2 habitat located to the north of Agasthiyamalai Elephant Reserve was declared as Periyar Elephant Reserve in Kerala & Periyar – Srivilliputhur Elephant Reserve in Tamilnadu.

The significance of the current notification is the acknowledgement that 1) the small elephant population, 150 to 200 individuals, and their habitat in Agasthiyamalai elephant reserve is of conservation importance, and 2) improving elephant populations, conserving their habitat and securing elephant corridors for the Agasthiyamalai elephant reserve are important management actions.

Large areas of the Agasthiyamalai Elephant Reserve are within the Kalakad Mundanthurai Tiger Reserve and Kanniyakumari Wildlife Sanctuary and are relatively well protected from poaching. In recent years, some parts of the elephant reserve have witnessed crop damage due to elephants. However, the biggest challenge for elephant conservation in this landscape would be in securing connectivity with the larger elephant population (~1000 individuals) in the Periyar and Srivilliputur reserves.

Currently there remains weak evidence for elephant movement across the Ariankavu pass/ Shencottah Gap. Thus, the Agasthyamalai elephant reserve remains a small isolated population. The Shencottah gap is a natural break in an otherwise continuous mountainous range in the southern Western Ghats. This topographic relief has facilitated establishment of railway lines and a road which has facilitated east-west movement of goods and people for more than a century. Historically, vast swathes of pristine forests around this gap were diverted to raise plantations of rubber, teak, and tea and for linear infrastructures. In recent decades, this natural pass has witnessed unplanned development and rapid transformation which includes a construction of a large reservoir that led to submergence of forests and expansion of human settlements; widening of National Highway (NH-208) from Madurai to Kollam and concomitant traffic increase; and the gauge conversion of the railway line between Shencottah in Tamil Nadu and Punalur in Kerala. Consequently, with increase in human settlements and allied

activities, the movement of elephants between the Periyar and Agasthiyamalai landscapes became impossible by the end of the 1970s. Connectivity for other large mammals including tigers, lion-tailed macaques, and gaur was also affected.

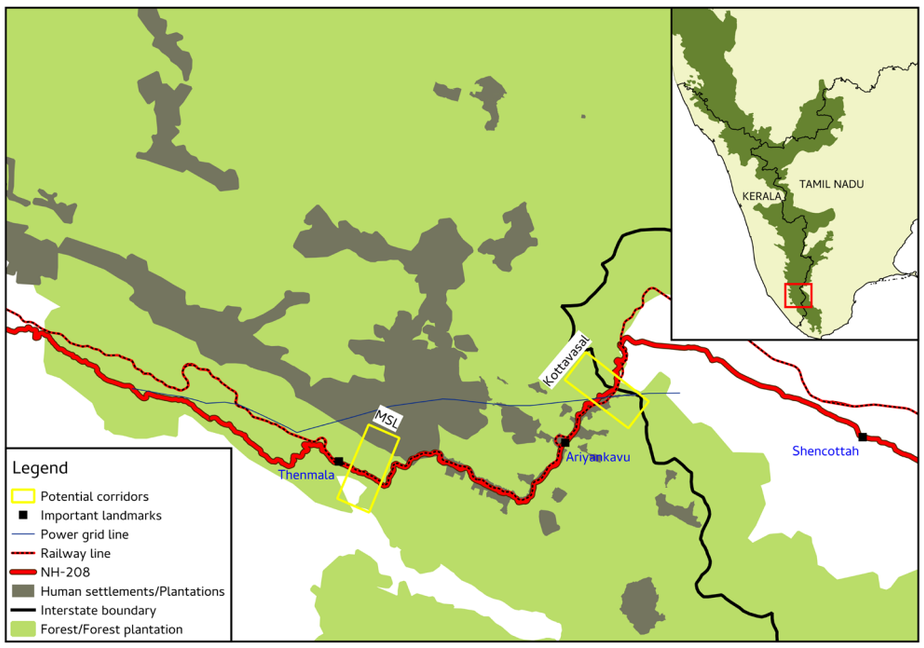
There is sufficient scientific evidence which clearly highlights that small isolated populations are at a higher risk of extinction and this is further exacerbated when there are very few males in the population or when connectivity is disrupted. The elephant population in Periyar was seriously impacted by ivory poaching during the 1970s and 1980s, and as a result the sex ratio of this elephant population is heavily female-biased. Although some recovery is expected, the demographic and genetic recovery will take a long time and will require gene flow. Often, only bull elephants move between fragmented and degraded habitats, and this might be sufficient to maintain the genetic connectivity between isolated populations. Hence, securing the connectivity between Periyar and Agasthiyamalai elephant reserve is important for elephant populations in both these reserves.

While reliable demographic details of the elephants in these two populations are not available, our long-term research estimated that around 25 individual bulls use an area of ~350 km around the Ariyankavu pass. Our earlier field research (2008-2016) suggests that elephants use large parts of the area around the Ariyankavu pass throughout the year. But the movement within the pass itself was low, especially around human settlements and the National Highway. Along this pass, in locations where human activity is low, the terrain is rugged and too steep for elephants to negotiate quickly. Even if they manage to negotiate these slopes, they will have to cross a very busy highway. There are therefore very few locations conducive for elephants to move across the Ariyankavu pass.

Our long-term monitoring reveals two potential elephant passages - one on the western (Mean Sea Level or the, MSL corridor, in Kerala) and the other on the eastern end of the pass (the Kottavasal corridor, on the interstate boundary of Kerala and Tamil Nadu). These wildlife corridors urgently need legal protection and restoration. We have documented bulls and family groups using these corridors, close to both sides of the pass. A combination of dense human settlements and associated disturbances, high traffic volumes, and the steep slopes deter even bulls from crossing.

The Periyar and Agathiyamalai elephant populations are separated by a short distance of about 200 meters, in the MSL corridor, which has a high probability of elephants negotiating existing barriers. To facilitate elephant movement, the existing road and railway line will have to be retrofitted with crossing structures. This will also ensure a straighter road in the ghat section, thereby ensuring fewer vehicular accidents. Such a small degree of effective restoration could re-establish connectivity for elephants across the Ariyankavu pass. Other mammals like sambar, gaur, tigers, and probably elephants could use the passage along the Kottavasal corridor, provided we are able to protect it and construct effective animal crossing structures. This would also mean that future infrastructure projects will have to be carefully planned with sufficient safeguards to maintain and enhance connectivity for wildlife.

Equally important is to prevent the surrounding forests from getting diverted for any non-forest use.Restoration of connectivity between Periyar and Agasthiyamalai will benefit elephant conservation in many ways. First, the Agasthiyamalai population will be buffered from local extinction by linking it to a larger population of around 1,000 elephants north of the pass. Better protection would result in an increase in numbers and such spill-over populations would be able to disperse rather than be forced into human-dominated areas, where conflict is inevitable.



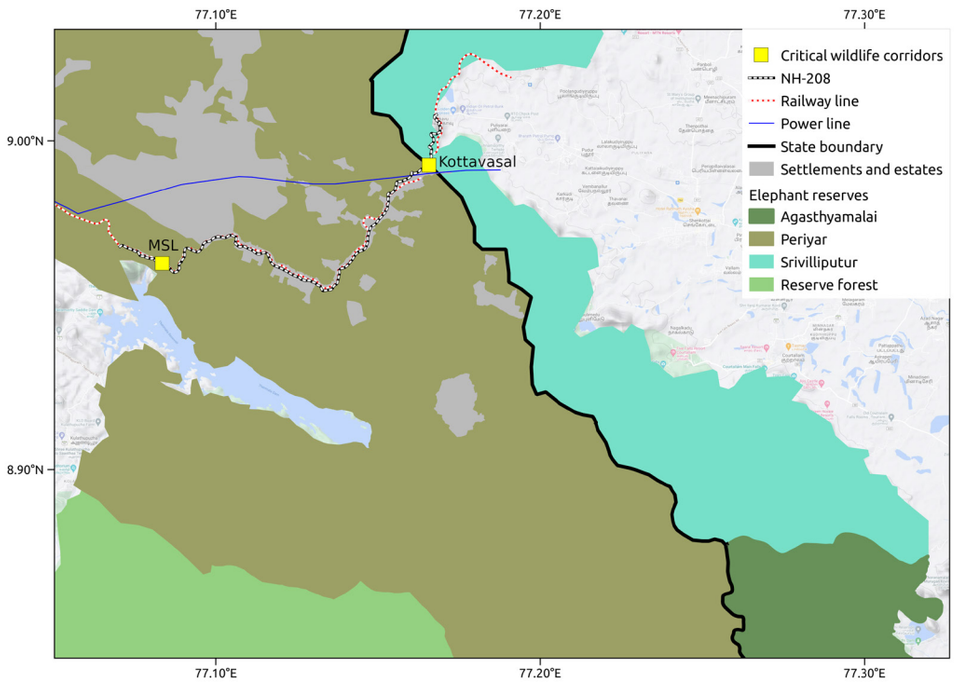


Fig- 5.1 & 5.2: Maps highlighting areas that need to be restored to facilitate large mammal movement across the Ariyankavu pass

The opportunity and need to restore connectivity are clear. Therefore, targeted efforts from State and Central Governments would help in creatiing this safe passage for the gentle giants through an estimated 7,500 sq. km. of productive, connected wildernesses across Kerala and Tamil Nadu, including the Periyar – Agasthiyamalai landscape.

Such conservation imperatives are triggering massive investments in the creation of wild corridors and wildlife crossing structures in other parts of the country; and where they have been implemented, they have proven to be cornerstones for the conservation of endangered species (Eg., NH-44 in Central India).

For effectively implementing such actions, it is essential to have long term data from the field to precisely place wildlife crossing structures and also to determine the kind of structure that will produce the desired outcomes in the given landscape. While we have made some progress in this field of connectivity conservation, most of these have been achieved when new infrastructure lines have been constructed or existing ones have been expanded. Retrofitting existing infrastructure with wildlife crossing structures is a bit more challenging, but it is not an impossible challenge with the engineering progress that has been achieved in the last decade or so. Gaining such experience is of great conservation value as many such wildlife corridors in India that might need retrofitting of animal crossing structures to restore connectivity remain unnoticed and are not prioritised.

Maintaining and restoring corridors identified by robust field studies should become a major priority for India. Considering this, the success of notifying the Agasthiyamalai elephant reserve depends on linking the Periyar and Agasthiyamalai elephant populations.

Long term studies have recorded the presence of elephant families (above) and adult bull (below) close to the linear barriers in the Ariankavu pass.

Pic: Srinivas Vaidyanathan

6. Ganesha in the backyard! How elephants expanded their range in South West Bengal

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Changes in the geographic range of species are a natural phenomenon; however, in the last century most of these range changes are result of human actions (Ripple et al., 2014). The change in the range also depends on the adaptations to the habitat conditions of a species. The range expansion and range shift by a large-bodied animal like the African elephant (Loxodonta africana) is well-documented (White, 1994). For example, African elephants expanded their ranges to include pastoral lands in Kenya to meet their nutritional requirements (Graham et al., 2009) or shifted their ranges due to the transformation of the land for agriculture in the Sebungwe region of north-west Zimbabwe (Hoare, 1999). Such changes in elephants are accredited to the vegetation types and availability of high-quality food resources (White, 1994). Often, animal populations expand their ranges to acquire sufficient food resources and shelter because their survival depends on the spatial distribution of suitable habitat. Increasing geographical ranges of large-bodied animals can lead to a range of direct or indirect interactions with humans, which can have positive or negative consequences for both. While positive interactions are beneficial (Yerbury & Lukey, 2021), negative interactions lead to conflicts that can be the culmination of a negative attitude by humans towards conflicting species (De Boer & Baquete, 1998; Nyhus & Tilson, 2000).

Elephants became locally extinct from large tracts of South Bengal in India in the late 18th century (Palit, 1991). Subsequently, they recolonized and expanded their distribution in South Bengal from forests in neighboring provinces since 1950 onwards (Shahi, 1980). The first long-distance movement by elephants from the Dalma to Purba Medinipur district beyond the Kangsabati river was recorded in 1987 (Dey, 1991, 1993). It can be attributed to the success of the forestry projects (Datye & Bhagwat, 1995) that converted a few patches of degraded land into forests which were surrounded by agricultural land and water (Chatterjee, 2016) that provided the corridors for movement and shelter for the elephants (Singh, Singh & Chowdhury, 2002; Chatterjee, 2016). The vast croplands and no competition from other wild animals might have been a reason for the elephants to increase their range in the landscape. Another major reason for the change in the movement was the forest degradation in the Mayurjharna Ele-

phant Reserve within West Bengal that resulted in range expansion in human–use areas. This demonstrates how anthropogenic activities have resulted in the range expansion of elephants to a human-dominated agricultural landscape.

A few elephants entered South Bengal in the 1950s through Mayurjharna Reserve via the Kankrajhore region from Dalma Wildlife Sanctuary in Jharkhand. One of the major hypotheses for such a greater expansion by elephants is the disturbance caused in the Dalma Wildlife Sanctuary and adjoining areas in the Singhbhum district of Jharkhand. The iron ore mining in the adjoining Dalma Wildlife Sanctuary caused perilous disturbances to the ecological conditions (Giri, Singh & Mahato, 2017) that disrupted the ecological balance in the forest (Guha & Guha, 2014). This resulted in habitat degradation, deterioration in the quality of drinking water, and loss of refuge cover for the elephants (Guha & Guha, 2014) that forced the elephants to move towards Mayurjharna in South Bengal (Chatterjee, 2016).

Bull Elephant in a paddy field in a close proximity with local people
Pic - Aakriti Singh

Elephants from the Dalma started moving towards Mayurjharna between October and December due to the availability of the paddy crop, but their movement was limited to the west of the Kangsabati River (Dey, 1991). By the mid-1970s, elephants started moving into Purulia district up to Sindhri (Shahi, 1980), wherein they stayed for 20 days. Shahi (1980) reported the

movement of elephants in September and some incidences of crop damage in Paschim Medinipur during the same time. Elephants were confined to ~1200 km2 area of Ajodhya Hills and Mayurjharna Reserve in Purulia during the 1950s and 60s (Fig. 6.1 a). Although elephants were primarily confined to the Ajodhya Hills and the Mayurjharna Reserve, a few expanded their range to ~1600 km2 of the northern periphery of the Mayurjharna Reserve during the 1960–70s (Fig. 6.1 b). By the 1970–80s, elephants expanded their range to ~2100 km2, and ~3800 km2 by the 1980–90s, yet the range was confined to in-and-around the Ajodhya Hills and the Mayurjharna Reserve (Fig. 6.1 c, d). During the 1990–2000s, elephants increased their range to ~17400 km2 by moving to the southern part of South Bengal (Fig. 6.1 e). In the following decade, the range had increased to 18500 km2 by 2000–10s (Fig. 6.2 f). However, the range has shrunk, especially in the northern region of their earlier range to ~13200 km2 during 2010–18 (Fig. 6.2 g).

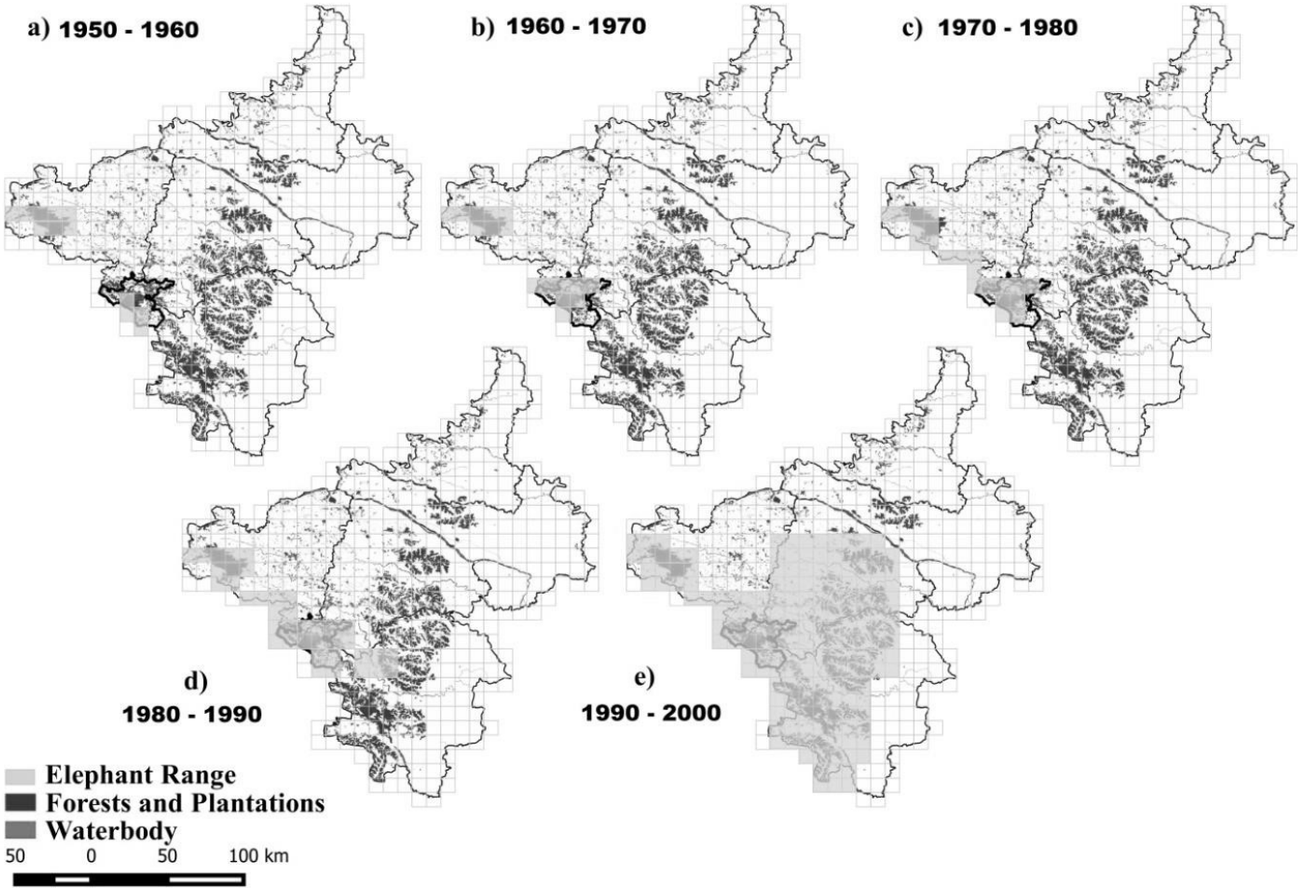

Fig 6.1. Area utilized by elephants in South Bengal over the decades (1950–2000)

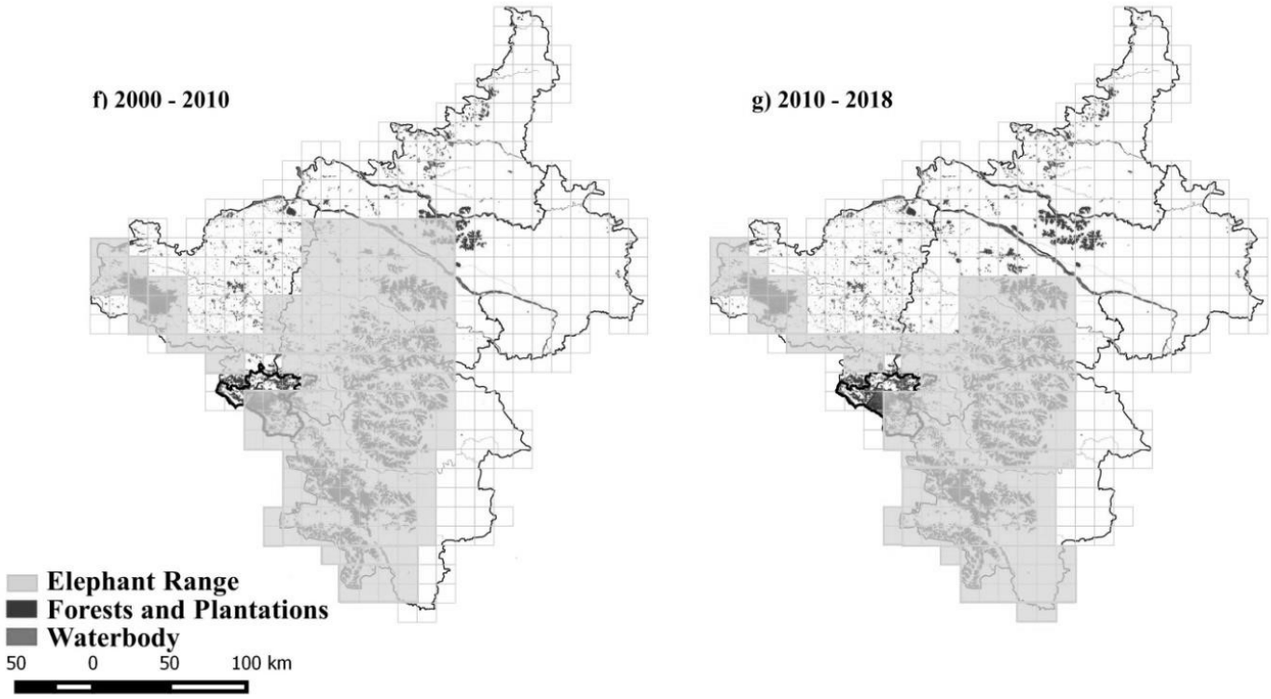

Fig 6.2. Area utilized by elephants in South Bengal over the decades (2000–2018)

This expanded range has led to persistent conflict between human and elephants. However, the intensity of the conflict has been perceived to have increased in the recent past in the Indian Subcontinent. The loss of forest cover led to habitat fragments that forced the elephants to move out of the forests, either for foraging in agriculture fields or moving between the fragments (Sukumar, 1990). The conflicts occurred largely outside the forests, especially along their movement paths (Prakash, Wijeratne & Fernando, 2020). In south Bengal, the presence of elephants near the edge of forests and around agricultural land led to high conflict. The proximity of elephants to human-dominated areas for their dietary requirements (Gubbi, 2012) has become a matter of concern from the management perspective too. In south West Bengal, the continuous expansion of the elephant range has resulted in high conflict. Therefore, the forest department adopted measures like erecting electric fences, digging trenches, and also regular driving of elephants through hula parties (the practice of driving the elephants using a torch made of rugs and cloth which are put on fire using any flammable oil) to stop the movement of elephants on a daily basis (Chatterjee, 2016). Yet, the intensity of human-elephant interactions persists as elephants have become residents in the landscape and continues feeding on agricultural crops leading to conflict.

Elephant worshipped in a temple space near a sacred groove
Pic - Aakriti Singh

Despite a sense of respect for elephant as a sacred animal in the South Bengal, people have expressed intolerance toward them if they enter their crop fields or villages. This may be due to, most farmers in the landscape being small farmers with less landholding and reap one crop per year whose livelihood is dependent on small agricultural fields. Any loss of resources could be attributed to limited livelihood opportunities. This is similar to Tanzania, where the farmers have a positive perspective on animals in areas where they have more food security (Salerno et al., 2016). In Myanmar, small farmers are more intolerant towards the elephants due to crop destruction or loss (Sampson et al. 2019). The retaliatory killing and electrocution of elephants is likely due to intolerance, which is a major concern in the entire elephant range (Sukumar, 1989). Such negative steps by people may decrease the general support for any conservation initiatives. People often take retaliatory steps against elephants also due to psychosocial impacts due to loss of their crops, kin's or properties, that too if they are uncompensated for the loss. A large-scale awareness program to the farmers and local people in the high conflict areas and immediate attention by the forest department on conflict issues only help to win the confidence of people.

The general belief in considering elephants as gods has been challenged by their need to prioritize livelihood over their beliefs. The human-animal conflict is a global issue that can have multiple dimensions, this scenario being one of them. Considering the highly dynamic situation of elephant movement, continuous monitoring of the elephant population and human-elephant conflict would help in a better understanding of the scenario and its management.

A young bull feeding on sugarcane

Pic - Aakriti Singh

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Project Elephant News Desk

1. Commemoration of the World Elephant Day at Periyar Tiger Reserve, August 2022

World Elephant Day is an international annual event, dedicated to the preservation and protection of the world's elephants. The goal of World Elephant Day is to create awareness on elephant conservation, and to share knowledge and positive solutions for the better protection and management of wild and captive elephants.

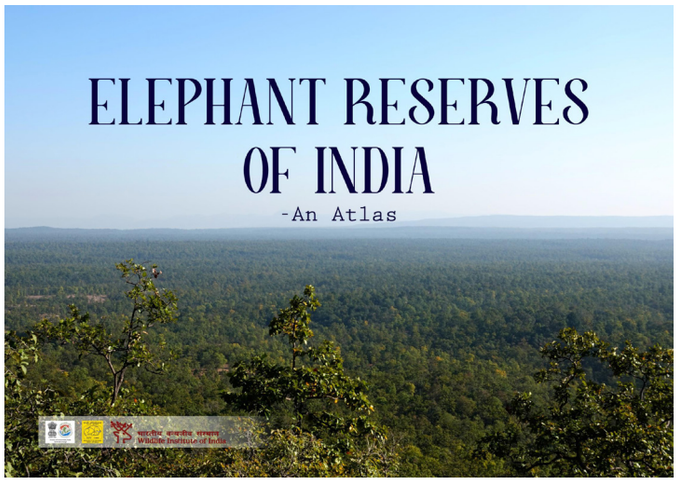
The current population estimates indicate that there are about 50,000 - 60000 Asian elephants in the world. More than 60% of the population is held in India. Indian Elephant has also been listed in the Appendix I of the Convention of the Migratory species in the Conference of Parties of CMS 13 at Gandhi Nagar, Gujarat in February 2020. World Elephant Day is being celebrated to bring attention of various stakeholders to support various conservation policies to help elephants, including improving enforcement policies to prevent the illegal poaching and trade of ivory, conserving elephant habitats, providing better treatment for captive elephants and reintroducing some captive elephants into sanctuaries. Elephant is the Natural Heritage Animal of India and India also celebrates this day to spread awareness towards conservation of the species.

The World Elephant Day 2022 was celebrated on 12th August 2022 in Periyar Tiger Reserve, Kerala. Hon'ble Minister EF & CC and Hon'ble Minister of State were the Chief Guests for the event.

During the world elephant day celebration in Kerala, following documents have been released by the Hon'ble Minister EF & CC

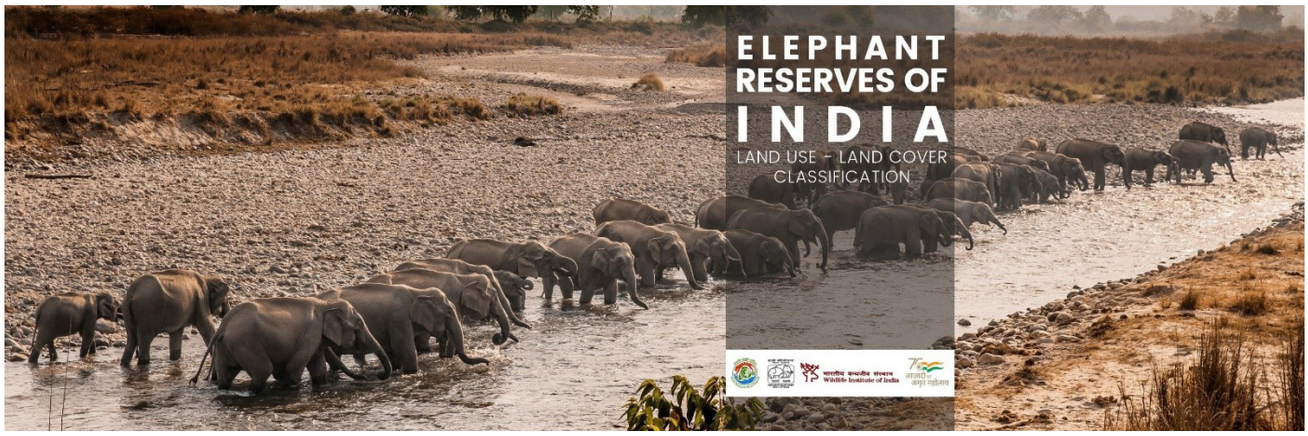
1.1 Technical Report: Elephant Reserves of India: An Atlas

Although ERs is in force from 1992 onwards, the ER in digital format for ready reference was lacking. Taking note of this, a countrywide database management system for the management and conservation of elephant and Elephant Reserves (ER) was initiated by Project Elephant Division, MoEF&CC. As of 2021, 31 ERs have been formally notified by 14 State Governments. The Objective behind mapping ERs is to address this gap by creating a repository of ERs in India and also to create spatial and thematic layers helpful for the management. Forest Department from the states of Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Karnataka, Kerala, Jharkhand, Odisha, Meghalaya, Nagaland, Tamilnadu, Uttar Pradesh and West Bengal have provided the digital boundary (shapefile/kml) of the ERs in their respective State. Additionally, ER from Uttarakhand were digitalized on the basis of Gazette notifications.



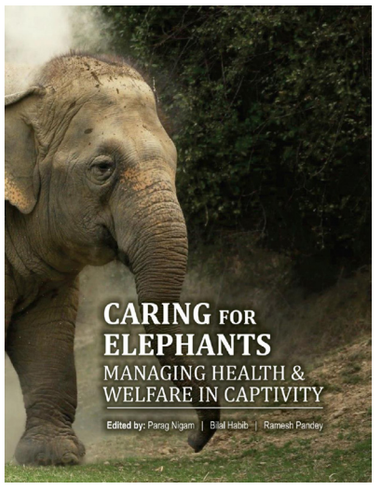
1.2 Technical Report: Land-use and Land-cover for the Elephant Reserves

The land-use and land-cover (LULC) of the landscape in and around the elephant habitats has a direct effect on both conservation and conflict management of elephant populations in the country. Thus, it would be important to have an understanding of the broad trends in the LULC in the elephant habitats. Considering this, as a preliminary effort, the Elephant Cell of the Project Elephant and WII had prepared a report on the LULC for the Elephant Reserves in India.



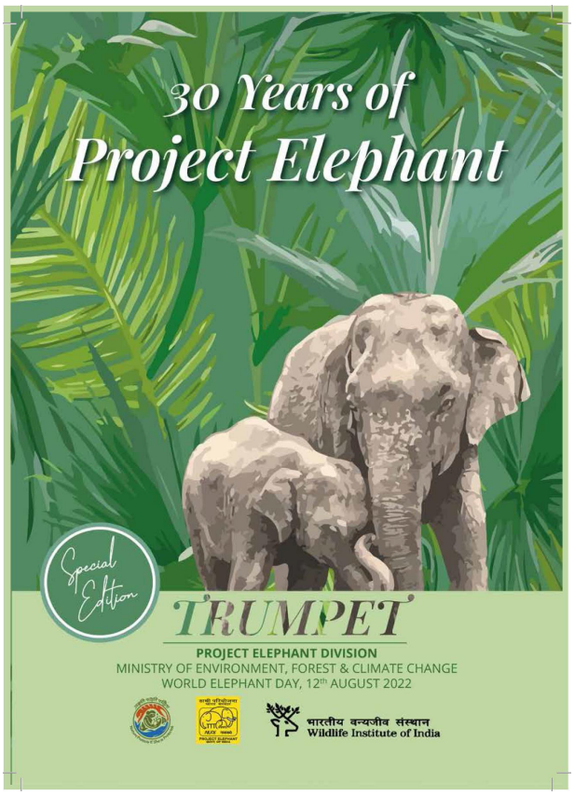
1.3 Book: Caring for elephants: Managing health and welfare in captivity:

Improving the welfare conditions of the captive elephants is one of the stated objectives of the Project Elephant, MoEF&CC, Government of India. While extensive literature on captive elephant management is available, there is also a long-felt need for ready-reference material that can be used by field veterinarians and captive elephant managers. Further, such reference material needs to be concise, lucid with minimal of scientific jargons, and attractive for the field personnel. Considering this, the Elephant Cell at the WII with support from Project Elephant Division of the MoEF&CC, has come up with a ready reference aimed at documenting the best-practices in health-management for veterinary professionals. The document draws expertize from a spectrum of experts from across the country for managing health of captive elephants. The document includes 18 chapters with details on various aspects of elephant biology and status, captive care, welfare management, health management, personnel concerns and genetic characterization.



1.4 Magazine: Special edition of Trumpet newsletter for commemorating 30 years completion of Project Elephant

The Project Elephant publishes a quarterly magazine Trumpet that focusses exclusively on elephant-related research, conservation and management. Leading researchers and experienced foresters regularly contribute articles for publishing in the Trumpet. The year 2022 marks the 30th year of Project Elephant being and this special edition elaborates on the Project Elephant in India and its contribution towards elephant conservation. This illustrious work encompassing the approaches, management regimes, process and outcomes of elephant conservation initiatives from all across the nation addressing the whole gamut of elephant conservational issues will serve as a navigation input to help the forest officers, State Governments, Civil societies, local communities and other stakeholders to deal with issues of elephant conservation more effectively.

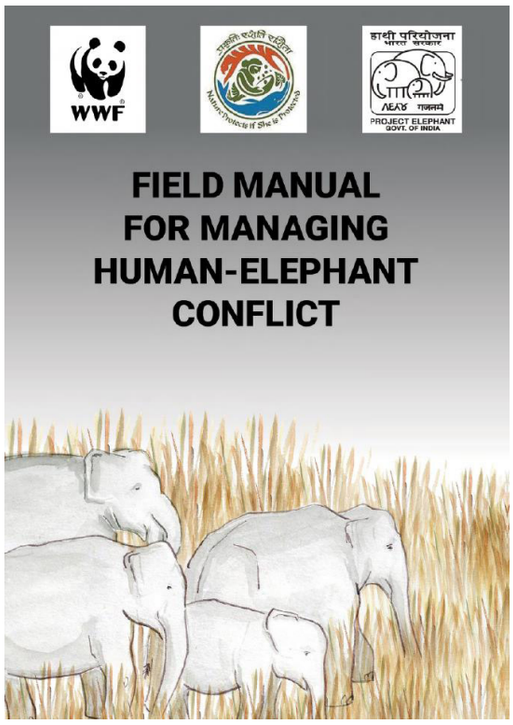


1.5 Technical Manual: Field manual for Managing Human-Elephant Conflict:

Human-elephant conflict (HEC) describes the various direct and indirect negative effects that come from humans and elephants competing over resources. HEC manifests in a range of ways. Sometimes, conflict escalates and results in the death of people and elephants –around 500 people are believed to be killed by elephants every year in India, and around 100 elephants are estimated to be killed by electrocutions, poisoning, train accidents, and poaching for ivory or other elephant parts. Crop and property damage by elephants is another visible manifestation of conflict. HEC also has more hidden repercussions. The perpetual threat of elephants lurking in or near the village, or even breaking into a person's home, can also cause chronic fear and stress in communities especially beset by HEC. Research suggests that elephants, also,

become more stressed due to constantly being chased by people. For humans and elephants alike, conflict is a serious issue. To make elephant conservation more effective and socially just, human-elephant conflict must be minimized.

This "Field Manual for Managing Human Elephant Conflict" (referred to as the Field Manual from here on) is based on the collective experience of WWF-India and Forest Department officials across several states, working to reduce HEC over decades. The document is intended to provide a coherent, systematic approach to dealing with HEC. The Field Manual is aimed to provide Forest Department officials with a set of best practices to reduce human-elephant conflict, promoting both human well-being and elephant conservation. While there are many tools that might help reduce conflict in the short-term, and many other necessary interventions (like habitat restoration) that could help reduce HEC in the long-term.



2. Project Elephant Working Committee Meetings

i. Meeting of the 17th Steering Committee

Steering committee meeting: 17th Steering Committee meeting was conducted at Periyar Tiger Reserve, Kerala on 12th August 2022, under the Chairmanship of Hon'ble Minister EF & CC and Co-Chaired by Hon'ble MoS EF & CC. During 17th Steering committee meeting, the Malayalam version of a field manual for Managing Human Elephant Conflict to frontline staff was released by the Hon'ble Minister EF & CC, Hon'ble MoS and other Officials from the Ministry.

ii. Meeting of the 4th Central Project Elephant Monitoring Committee (CPEMC)

The Central Project Elephant Monitoring Committee (CPEMC) was reconstituted by the Project Elephant on 28th march 2022. The fourth CPEMC meeting involving the newly constituted committee members was held on 13th August 2022, 9.30 AM at Kalari Hall, Thekkady, Periyar Tiger Reserve in Kerala. The meeting was chaired by the Dr. Satya Prakash Yadav, Additional Director General of Forests, Project Tiger & Member Secretary (NTCA), MoEF&CC. The meeting was also attended by the members of the Captive Elephant Healthcare & Welfare Committee.

iii. Meeting of the 1st Captive Elephant Health Care and Welfare Committee (CEHWC)

The first meeting of the Captive Elephant Health Care and Welfare Committee (CEHWC) was held on 13th August 2022 at Kalari Hall, Thekkady, Periyar Tiger Reserve, Kerala under the chairmanship of Dr. Satya Prakash Yadav, Additional Director General of Forests, Project Tiger & Member Secretary (NTCA), MoEF&CC. The CEHWC was reconstituted by Project Elephant on 24th March 2022. The Director General of Forests and Special Secretary, MoEF&CC Shri. Chandra Prakash Goyal presided the meeting. The meeting was also attended by the members of Central Project Elephant Monitoring Committee.

3. Felicitation with the Gaj Gaurav Awards

In the 16th meeting of the Steering Committee of Project Elephant held on 29th April, 2022 chaired under the Chairmanship of Hon'ble MEF, EF&CC, it was decided to recognize the good practices adopted by the captive elephant owners and outstanding works done by field officers, frontline staff and private custodians in elephant conservation. As decided in the meeting, nominations were received from the state/ UT Governments. The selected candidates were awarded by the Hon'ble Minister, EF & CC during the celebration of World Elephant Day 2022 at Periyar Tiger Reserve, Kerala.

4. Wildlife Week Celebration 2022

Wildlife Week is celebrated all over the country in the month of October from 2nd to 8th every year with the view to preserve the fauna means the animal life of the India. It was first started in the year 1952 with the great vision of saving the life of the Indian animals by taking some critical steps. The Government of India organizes a variety of activities during this great period through the environmentalists, activists, educators who encourage and accelerate the people mind to become aware of the wildlife conservation. The Project Elephant, MoEF & CC in collaboration with National Museum of Natural History (NMNH) and National Zoological Park (NZP) organised a webinar on People and Elephants: Living with gentle giants was conducted on 06.10.2022 and A Day in National Zoological Park, New Delhi, an awareness program for the kids were organized on 07.10.2022.

5. India's Participation and Representation in the CITES

India made intervention in CITES CoP19 on trade in Asian Elephant and underlined the various measures taken to manage captive elephants in the country and the existing legal provisions. The Indian delegation walked through the legal provisions that protect elephants from trade and trafficking in India. Few interventions made by the India are as follows: 1) The Wildlife Protection Act, 1972, manages the trade of all elephant ivory. Further, in India, all ivory trade markets and carvings have been closed since 1990. 2) A high level of protection has led to a stable population of Asian elephants in the country. India thus has extended support to measures to close legal markets which are contributing to the poaching of elephants or illegal trade of ivory. 3) Apropos managing captive elephants, the Government is taking measures through legislatures that require a valid ownership certificate issued by the Forest Department for any person to possess the captive elephant and also microchips are widely used to identify legally owned captive elephants. Recently, the Government of India under Project Elephant Division of MoEFCC has started DNA profiling of captive elephants (involving data capture through a mobile application) in the country with the collaboration of Wildlife Institute of India, Dehradun. India has also stated that every elephant range country shall adopt a consistent marking and tracing system for captive elephants. In this regard, India extended its support to the revised and new draft decision on trade in Asian Elephants (Annex 3 CoP19 Doc 66.1).

6. Ground-truthing of Elephant Corridors

Elephant is a long ranging migratory landscape species and move one place to another in search of food and water. Due to developmental actives, encroachments and other anthropogenic pressures, the elephant landscapes are fragmented which resulted in Human Elephant Conflicts. In order to minimize the Human Elephant Conflicts, it is essential to provide safe passage for elephants from habitat to habitat. Such safe passages are known as elephant corridors. In an important task aimed at ensuring the long-term viability of elephant landscapes in India, the Project Elephant Division along with the Elephant Cell at WII and the Elephant Range states of India had initiated the task of recognizing and ground-truthing the corridors. For this purpose, the known corridors as per the Gajah report of 2010 (Elephant Task Force report), other seminal publications on elephant corridors in India including the Right of Passage (2017 edition) and the list of corridors as available with the respective State Forest Departments have been included. The specific teams identified based on expertise have been entrusted with the task of facilitating the State Forest Departments in recognizing and ground-truthing the elephant corridors.

Ground validation of a corridor in Dharamjaigarh Forest Division in Raigarh District of Chhattisgarh

The task of recognizing and validating elephant corridors in the field is an ongoing activity. Recently, the task has been completed in the state of Chhattisgarh during October 2022. In Uttarakhand ground trothing of elephant corridors is being carried out. The assessment has already been completed in the Rajaji Landscape. It is noteworthy that some of the important elephant corridors like Chill-Motichor corridor were restored and thus have become functional.

Ground validation of different elephant corridors in Rajaji Landscape of Uttarakhand

7. Notification of the Agasthiyamalai Elephant Reserve

A critical biodiversity hotspot of the Western Ghats and a stronghold for elephants, the Agasthiymalai region has been notified as the Agasthiyarmalai Elephant Reserve during August 2022 thereby becoming India's 32nd Elephant Reserve. The ER spans 1197.5 km2 and encompasses a variety of habitats in the Western Ghats. A large proportion of the ER falls under the Tropical Evergreen Forests. The Agasthiyamalai ER is also an important catchment area for several south Indian rivers that bring succour to the people of Tamil Nadu and Kerala. The notification would bring-in the much awaited landscape approach to conservation entailing identification and strengthening of important wildlife corridors.

8. Notification of the Terai Elephant Reserve

In a strategic move to conserve the transboundary elephant population in the Indo-Nepal boundary, the Terai Elephant Reserve spanning 3049.4 km2 was notified during December 2022. The Terai Elephant Reserve would be one of the last remaining Terai grassland habitats for the Asian elephants. The Terai grasslands, which once abounded along the Gangetic plains drastically reduced and thus, declaration of the Terai Elephant Reserve, which encompasses a large fraction of remnant Terai grasslands assume greater importance.

9. Notification on declaration of Elephant corridor as Conservation Reserve in Odisha

Amid concern over the loss of forest cover and series of wildlife deaths, the state government of Odisha has notified 7,263-acre area in the Similipal-Hadgarh-Kuldiha corridor as a conservation reserve. This notified stretch is a traditional elephant corridor linking rich bio-diversity of

the three sanctuaries which allows wildlife movement from one habitat to another to facilitate gene flow of different species. The Forest, Environment and Climate Change department which issued the notification of the new 'Similipal-Hadgarh-Kuldiha Conservation Reserve' notified under the Sec 36-A Wildlife (Protection) Act 1972, as amended by the Government of Odisha which will ensure effective protection of the landscape, its flora and fauna.

10. Workshop for the Mahouts and Elephant Handlers in Dudhwa Tiger Reserve

India has over 2757 captive elephants across 26 States maintained in elephant camps and rescue centres of the state forest departments; zoological parks, and under private ownership and possess the same legal status as wild elephants as per the Wildlife (Protection) Act, 1972. Captive elephant welfare and their management is one of the stated objectives of the Project Elephant, Ministry of Environment, Forest & Climate Change, Govt. of India. The role of captive elephants in rescue operations, managing human–elephant conflict situations, animal capture and translocation, patrolling in remote and difficult forest terrains etc. cannot be undermined. Thus, improving the overall capacities of the field personnel to effectively manage captive elephants in order to address their health and welfare needs is paramount. There are also ethical and moral imperatives to maintain welfare and health of captive elephants.

In spite of a long and cherished history of elephant husbandry in India, the status of captive elephant management calls for significant improvement. Ensuring the welfare and health of captive elephants remains a challenge due to myriad reasons that also include limited institutional and professional capacities resulting in poor husbandry and housing practices. Captive elephants are maintained by both government and private agencies. Most of the government owned elephants occur either in forest camps or in zoological parks. Privately owned elephants occur in a variety of places and settings and proves to be way more difficult to monitor and regulate to improve upon elephant welfare.

Elephant handlers train, nourish, maintain and utilize elephants in captivity. Thus, elephant handlers are the guardians of elephants. It is seldom possible to maintain captive elephants without trained and dedicated elephant handlers. Although India is home to some of the finest elephant handlers and even has communities that are dedicated in captive elephant husbandry and management, there is a steep decline in traditional knowledge in elephant upkeep due to break in knowledge transfer and multitude of other reasons. Mahouts who understand their elephants deeply and passionately are becoming increasingly rare. It is certain that without well-trained mahouts and elephant handlers, captive elephant management would become a huge challenge. Thus, the situation calls for reviving good mahoutry, and developing passionate and knowledgeable band of elephant handlers. This can be achieved by bringing together experienced mahouts, veterinarians, biologists and managers to improve the knowledge and skill levels of the practicing elephant handlers.

Elephant management is as much an art as it is a science. Therefore, in addition to theoretical aspects of elephant management, exposure to practical field considerations would be important for elephant handlers. Since the inception of Project Elephant by Government of India during 1992, there has always been an impetus to document best practices in managing captive elephants with emphasis for providing appropriate veterinary care. Considering this, Project Elephant, the Elephant Cell at Wildlife Institute of India and Uttar Pradesh Forest Department conducted a three-day residential workshop at Dudhwa Tiger Reserve in Uttar Pradesh during December 2022. A total of 30 elephant handlers and mahouts participated in the workshop and found the initiative extremely useful.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पर उन्मुखीकरण कार्यशाला
3-5 दिसंबर, 2022
दुधवा टाइगर रिजर्व, उत्तर प्रदेश
दुधवा टाइगर रिजर्व

11. Capacity building workshop on minimizing Railway – induced Elephant mortalities for the officials of Indian Railways

India is a megadiverse country, with only 2.4% of the world's land area, but accounts for 7-8% of all recorded species of the world, including about 91,000 species of animals and 45,500 species of plants. India is also the second-most populous country in the world with a population of over 1.3 billion people! To transport and cater to the needs of such a large population, the Indian Railway is the main artery of inland transportation in India.

The Indian Railways is at the core of India's economic development and is among the world's largest rail networks. To cater to India's fast-growing economy, the railway sector has envisaged several expansion and upgradation projects including Vision 2024 to achieve targets of 2024 MT freight loading by 2024. The railway also aims to electrify the entire network by 2023. Recognized as economic, energy-efficient, and environment-friendly relative to other means of transport such as roads and air, the expansion and upgrading of railways is seen as an important measure in supporting development through large-scale movement of people and goods. However, railway construction and operation has its ecological effects, and a range of impacts on wildlife and habitats have also been documented. Several of India's passenger and freight trains crisscross through some of the country's most sensitive wildlife habitats, particularly protected areas and corridors in central and eastern India that are home to critically endangered tigers and elephants, amongst other animals. The extensive network of our Railways cuts through several of these forested landscapes, compromising the connectivity of the landscape and resulting in a barrier effect.

India is home to the largest number of Asiatic Elephants, accounting for nearly 60% of the jumbo population. According to a 2017 estimate, India had a total of 29,964 wild elephants. India has 32 elephant reserves covering around 76,508 sq km area across 14 states of the country. But studies have shown that 30 percent of the country's wild elephants live in large and contiguous forests, while the rest are distributed across fragmented landscapes that have shrunk amid growing human activities, including cultivation. With the expansion of cultivated land along forest boundaries, elephants are increasingly being drawn to forage for crops such as maize, millets, paddy, sugarcane, and vegetables.

Among the states, Karnataka had the highest wild elephant count in India at 6,049 followed by Assam at 5,719, Kerala at 5,706, and Tamil Nadu - at 2,761. In the past ten years, 186 elephants were killed on railway tracks between 2009-2010 and from 2011-2021. Among states, Assam had the highest number of elephant deaths due to train hits with 62 deaths, followed by West Bengal at 57 and Odisha at 27. Over the past five years, India has lost 494 elephants to train accidents, electrocution, poaching, and poisoning. Train accidents accounted for 80 of these deaths. While 494 deaths over five years appeared to be a fraction of India's estimated population of nearly 30,000 wild elephants, such deaths could disrupt herd dynamics and further enhance the risk of human-elephant conflicts. The loss of a single older elephant in a

herd is the loss of experience for the others in the herd. The older members in the herds guide the younger ones. In their absence, the younger ones could stray into human-dominated landscapes, increasing human-elephant conflict.

India is a rapidly developing country, and our railway system is an integral part of that growth and expansion. However, with this progress comes the challenge of preserving our precious wildlife, particularly the Indian elephant, which is an emblem of our rich heritage and culture. The sad reality is that elephant-train collisions have become increasingly frequent in recent years, causing harm to both the elephants' and human lives. It is imperative to take a collaborative approach to tackle this problem and ensure the long-term survival of these magnificent creatures.

To reduce the impact of railways on our wildlife, it is important to build the capacity of our railway sector by sensitizing railway officials towards India's rich biodiversity and the various mitigation options available to avoid human-wildlife conflict and accidents. In this regard, the Project Elephant Division of MoEF&CC and Elephant Cell, Wildlife Institute of India organized a three-day capacity-building workshop on Minimizing Elephant Mortalities on Railway Tracks for Officials of Indian Railways.

As the Workshop's chief guest, Sh. S.P. Yadav, Director General of the MoEFCC's tiger, elephant, and forest conservation projects, emphasized the importance of striking a balance between conservation and development for our country's sustainable growth. He emphasized how it has been challenging to give straightforward and clear recommendations for mitigating railway-wildlife accidents until now due to the lack of capacity building for the railway sector. Shri Arun Kumar Khandelwal, Principal Executive Director, Gati Shakti, Railway Board, reiterated the Indian Railways' dedication to integrating environmental concerns with its growth initiatives. Sh. Virendra Tiwari, Director, WII, said that the outcome of the program would help

guide responsible railway development in consonance with the conservation of elephants and other wildlife in India. Total of 41 officials from various railways departments and training institutes participated in this capacity-building workshop.

12. Workshop on mainstreaming management of the Elephant Reserves for the Elephant Reserve managers

In order to bring uniformity in management practices across the country; to provide technical and financial support to elephant range states and address issues facing human–elephant conflict, Elephant Reserves (ERs) have been created across the four elephant-holding regions. India has notified 33 ERs covering an area of 76,508 km2 across 14 states. Conceptually, the ERs were envisioned as primary managements unit for managing elephant habitats, populations and at the same time, foster human-elephant co-existence in the shared landscapes.

However, unlike tiger reserves of India, the concept of ERs did not adequately amalgamate into management realm as yet. As ERs emanate out of the landscape approach advocated for elephant conservation and management considering large elephant home ranges and high mobility, mainstreaming ERs with wildlife management with an aim of standardizing elephant specific management requirements would be important for better management of elephant habitats and populations. As a step towards achieving this, bringing together the ER management from across the country to deliberate on range of topics relevant to elephant conservation and management, and including aspects of human–elephant conflict common across elephant reserves seem essential.

With this objective, the Project Elephant Division of the MoEF&CC and the Elephant Cell at Wildlife Institute of India has organised three-day residential workshop on mainstreaming management of the Elephant Reserves for the all the ER managers in the country from 20th march 2023 to 22nd march 2023. A total of 14 forest official participated in the workshop.

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Wildlife Institute of India