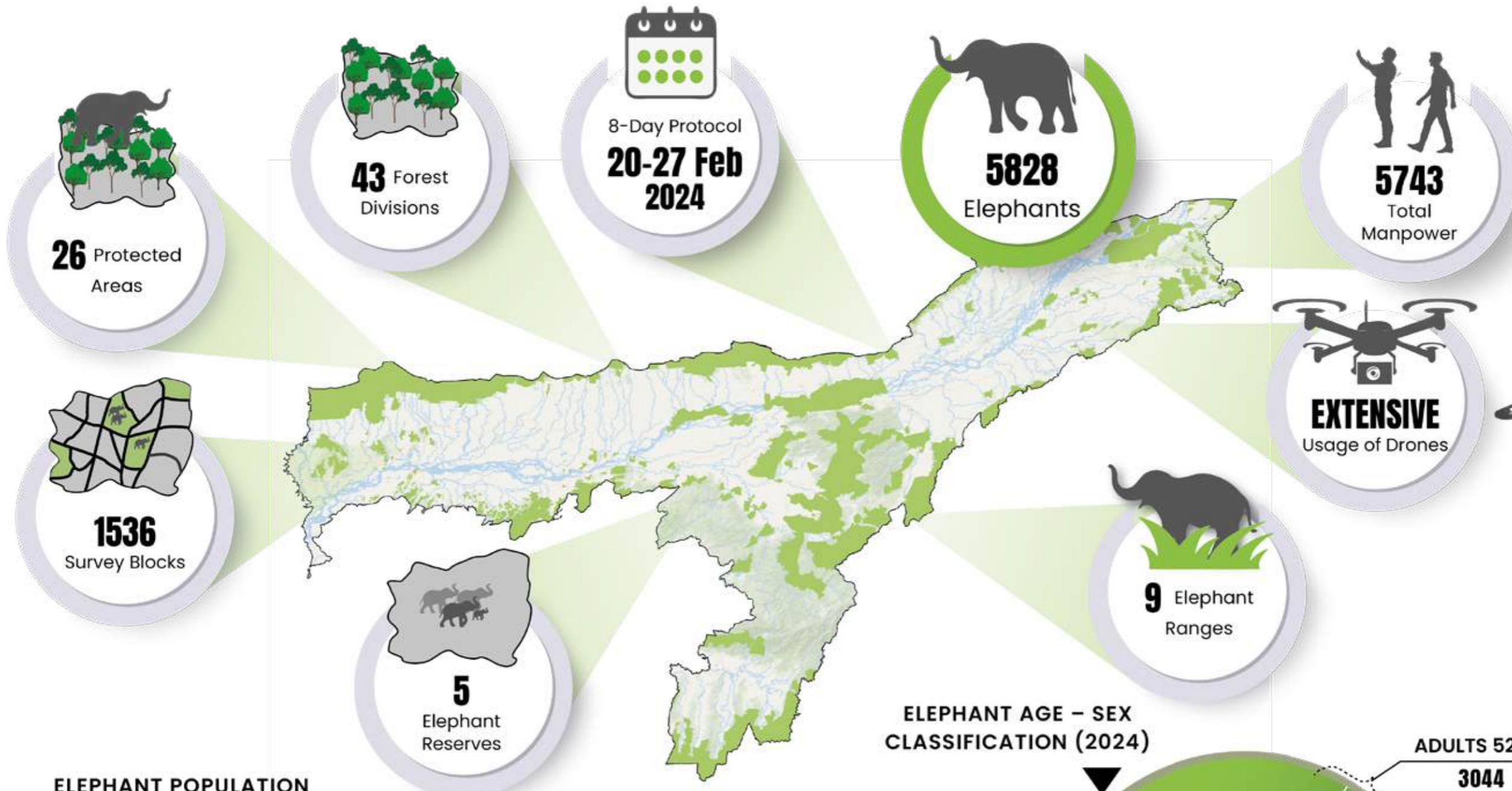# ELEPHANT POPULATION ESTIMATION IN ASSAM 2024

ASSAM FOREST DEPARTMENT

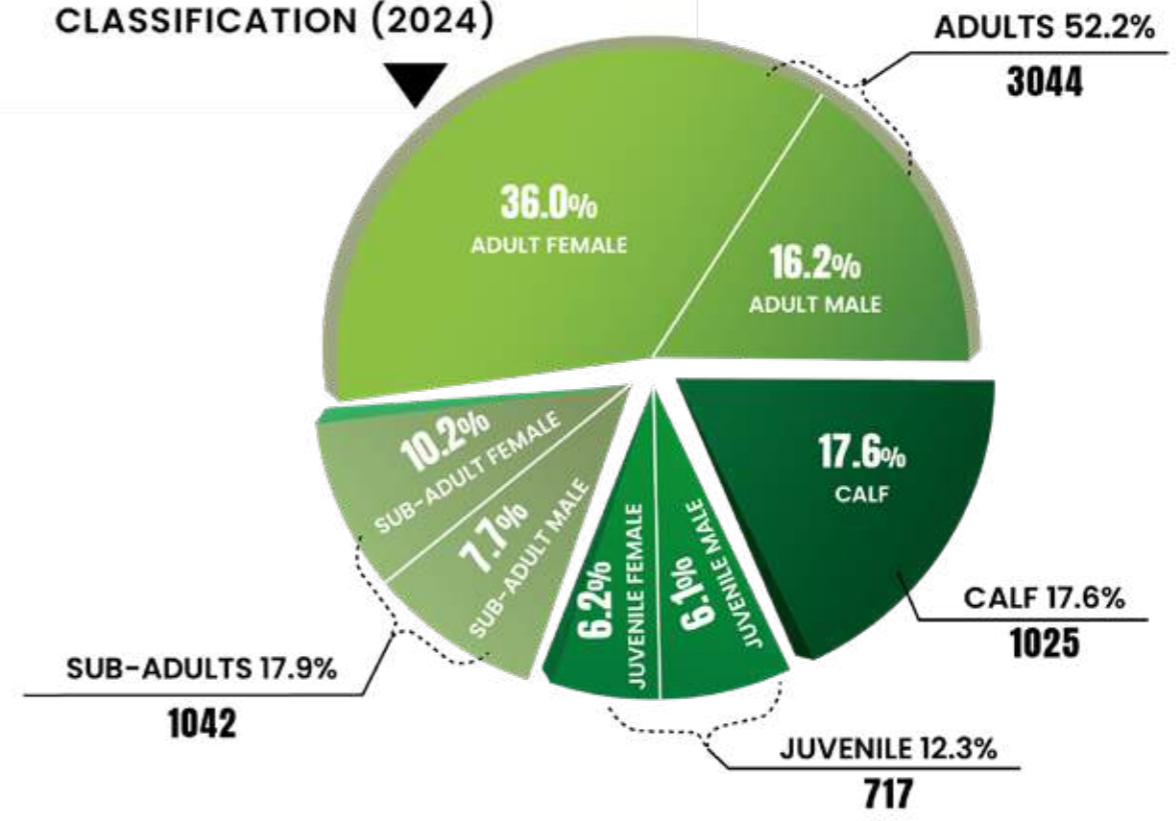**ELEPHANT POPULATION ESTIMATION IN ASSAM 2024**

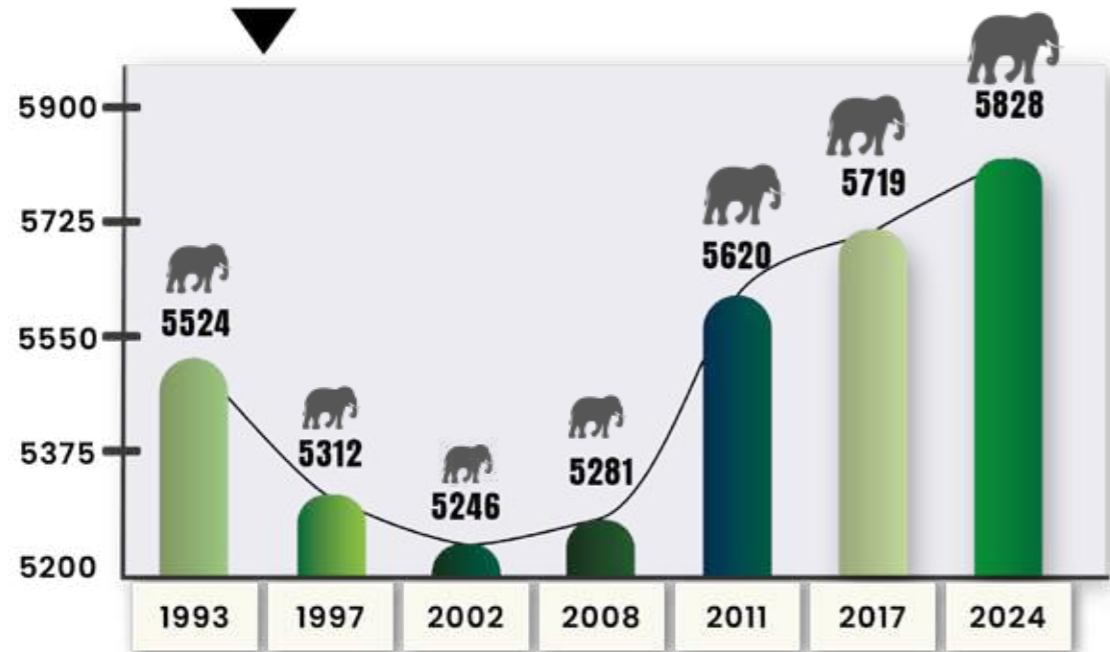**26** Protected Areas

43 Forest Divisions

8-Day Protocol
20-27 Feb 2024

5828 Elephants

5743 Total Manpower

1536 Survey Blocks

EXTENSIVE Usage of Drones

5 Elephant Reserves

9 Elephant Ranges

ELEPHANT POPULATION OVER THE YEARS

Year	Population
1993	5524
1997	5312
2002	5246
2008	5281
2011	5620
2017	5719
2024	5828

ELEPHANT AGE – SEX CLASSIFICATION (2024)

ADULTS 52.2% — 3044
- 36.0% ADULT FEMALE
- 16.2% ADULT MALE

SUB-ADULTS 17.9% — 1042
- 10.2% SUB-ADULT FEMALE
- 7.7% SUB-ADULT MALE

JUVENILE 12.3% — 717
- 6.2% JUVENILE FEMALE
- 6.1% JUVENILE MALE

CALF 17.6% — 1025

ড° হিমন্ত বিশ্ব শৰ্মা
Dr. Himanta Biswa Sarma

মুখ্যমন্ত্ৰী, অসম
Chief Minister, Assam

CMS.7/2023/2043
Dispur
19 Ahin, 1431 Bhaskarabda
6th October, 2024

MESSAGE

I am delighted to know that results of the Elephant Population Estimation (EPE) 2024 is being presented. Elephants are revered symbols embedded deeply in our cultural and historical fabric, epitomizing wisdom, strength, and prosperity. Their majestic presence serves as a powerful reminder of Assam's rich natural heritage and our enduring commitment to nurturing wildlife conservation.

The findings of the EPE 2024 present a narrative that is both promising and thought-provoking. The stability and robust health of the elephant population here serve as a resounding testament to our steadfast conservation efforts, a bright beacon of hope in safeguarding these gentle giants. However, this data amplifies the urgent need for enhanced habitat connectivity and innovative strategies to diminish the ever-pressing human-elephant conflict. At this juncture, it is imperative that we ensure Assam remains a sanctuary, not only for elephants but for the myriad of species that coexist in our vibrant ecosystem.

This exercise transcends mere statistical analysis; it is a reflection of the relentless dedication shown by our forest officers, frontline staff, and the local communities that stand united in this noble mission. To each individual involved in this monumental task, I offer deepest gratitude for your unwavering commitment, tenacity, and resilience. Your efforts illuminate the path forward, reminding us that true conservation strength lies within collective action and shared responsibility.

As we release this comprehensive report, I fervently urge all stakeholders, including experts and the conscientious citizens of Assam, to join in renewing our pledge to protect our precious wildlife and natural ecosystems. Our goal must be to forge a future that fosters harmonious coexistence between people and wildlife, ensuring both can flourish side by side. Let us work together to preserve the delicate balance of nature that sustains us all, crafting a legacy of conservation that will endure for generations to come.

(Dr. Himanta Biswa Sarma)

চন্দ্ৰমোহন পাটোৱাৰী
মন্ত্ৰী
পৰিৱেশ আৰু বন,
এক্ট ইষ্ট পলিছী এফেয়াৰ্ছ
সংখ্যালঘু কল্যাণ বিভাগ, অসম

Chandra Mohan Patowary
Minister
Environment & Forests Department
Act East Policy Affairs Department
Welfare of Minorities Department
Government of Assam

Date : 05/10/2024

MESSAGE

It gives me immense pleasure to present the findings of the Elephant Population Estimation (EPE) 2024 in Assam. Elephants are not only an integral part of our natural heritage but also serve as a flagship species for conservation, reflecting the health of our forest ecosystems. The EPE 2024 highlights the dedicated efforts of the Assam Forest Department in conserving our state's rich biodiversity and ensuring a safe habitat for these gentle giants.

The results of the 2024 survey show a stable and healthy elephant population across the state. This achievement underscores the significance of our protected areas and the success of our conservation strategies. However, we must not lose sight of the challenges that remain. Increasing habitat fragmentation, human-elephant conflict, and the need to secure critical corridors are pressing concerns that we must address with urgency and collaborative efforts.

I commend the Assam Forest Department and all the frontline staff for their dedication, resilience, and tireless efforts in conducting this extensive exercise. I am confident that the data and insights from this estimation will further strengthen our commitment to the long-term conservation of elephants and ensure that Assam continues to be a safe haven for these majestic creatures.

I urge all stakeholders, local communities, and conservation partners to join hands in supporting these efforts, as the survival of elephants is not only the responsibility of the Forest Department but a shared duty of all citizens.

With this publication, I reaffirm our government's unwavering resolve to safeguard the future of Assam's elephants and the unique ecosystems they inhabit.

(Chandra Mohan Patowary)

Room No. 201, 'Janata Bhawan', Block 'F', 2nd Floor, Dispur, Guwahati-781 006, Kamrup (M) Assam, India
0361-2237014 cmpatowary02@gmail.com, cmpatowaryoffce@gmail.com

Dr. Ravi Kota, IAS
Chief Secretary
Government of Assam

ড° ৰবি কোটা, ভাঃ প্ৰঃ সেঃ
মুখ্য সচিব
অসম চৰকাৰ

MESSAGE

Elephants hold a special place in Assam's natural and cultural heritage. Their presence is integral to maintaining the ecological balance of our forests, and their conservation status serves as a critical indicator of the overall health of our ecosystems.

The successful completion of the Elephant Population Estimation 2024 in Assam is a testament to the unwavering commitment and meticulous efforts of the Assam Forest Department and all stakeholders involved in this large-scale exercise. The survey recorded a total of 5,828 elephants in Assam, indicating an increase in the population since 2017. The presence of a healthy number of calves indicates a robust and thriving population, suggesting that the ongoing conservation strategies are on the right path.

I urge all stakeholders, including the Forest Department, local communities, and conservation organizations, to work together in a spirit of collaboration to further these efforts to protect these magnificent creatures and the habitats they depend on. Co-existence is not just about minimizing conflict but about recognizing the importance of these majestic animals in maintaining ecological integrity and promoting harmony in shared landscapes.

I extend my appreciation to the Assam Forest Department for their dedication and professionalism in executing this comprehensive exercise and for bringing out this publication.

Let us all work together to ensure that these majestic giants continue to roam freely and thrive in Assam's forests, symbolizing our shared commitment to conservation and coexistence.

07/X/2024

(Dr. Ravi Kota)

Mahendra Kumar Yadava, IFS (Retd.)
Special Chief Secretary (Forest)

Department of Environment & Forest,
Government of Assam, III Floor,
E Block, Janata Bhawan, Dispur,
Guwahati - 781006, Ph: 0361-2237089
E-mail: scs.for@assam.gov.in /
scsforestoffice@gmail.com

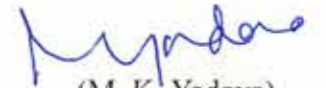Dated Dispur the 16th October, 2024

MESSAGE

The Elephant Population Estimation (EPE) 2024 provides a comprehensive and scientific assessment of the current status of the Indian elephant *(Elephas maximus indicus)* in Assam, underscoring both the progress made in conservation and the areas that require focused intervention. As keystone and umbrella species, elephants play a pivotal role in structuring their ecosystems, influencing habitat characteristics that support other wildlife species.

The findings of EPE 2024, indicating a positive growth trend, are a testament to the effectiveness of Assam's conservation measures, which include anti-poaching initiatives, habitat improvement, mitigation of human-elephant conflict, and community-based conservation programs. The report further highlights the reproductive health of the population, reflected in a strong Adult Female to Calf Ratio, which points to a healthy breeding rate and successful recruitment.

The role of Elephant Reserves in providing secure habitats and facilitating long-distance movements that are essential for overall population health is particularly critical in sustaining this stability. However, challenges such as habitat fragmentation and increasing instances of human-elephant conflicts continue to pose significant threats. Addressing these issues proactively is essential to securing the long-term survival of our elephant population.

I extend my heartfelt appreciation to the Assam Forest Department for their meticulous efforts in conducting this large-scale exercise and producing a high-quality publication. This report will be crucial in shaping future management strategies aimed at achieving a harmonious coexistence between humans and wildlife in Assam.

(M. K. Yadava)

Sandeep Kumar, IFS
PCCF (WL) & CWLW, Assam

FOREWORD

The Elephant Population Estimation (EPE) 2024 represents a monumental effort by the Assam Forest Department to generate a scientific and comprehensive understanding of the current status of the Indian elephant (Elephas maximus indicus) within the state. This report delves into multiple facets beyond mere population numbers, including distribution patterns, age-class composition, sex ratios, and reproductive health—providing valuable insights to guide future conservation strategies and policy interventions.

As a keystone and umbrella species, elephants have a significant influence on their ecosystems, and their presence serves as an indicator of overall habitat health. The findings of the EPE 2024 emphasize the critical role of Protected Areas and Elephant Reserves in maintaining population stability, while also drawing attention to areas of concern such as habitat fragmentation and the increasing frequency of human-elephant conflict. Addressing these challenges is paramount to ensuring the long-term survival of this iconic species in Assam.

The EPE 2024 is more than just a scientific assessment; it is a strategic call to action. The data and analyses presented here should be translated into actionable plans on the ground, with a focus on restoring habitat quality, fortifying protection measures, and securing essential corridors that facilitate the safe and unobstructed movement of elephants across landscapes.

I extend my deepest appreciation to the entire team of the Assam Forest Department, along with our dedicated frontline staff, conservation partners, and volunteers, for their unwavering commitment and tireless efforts in executing this large-scale estimation exercise. Their collective work has resulted in a high-quality publication that will serve as a framework for conservation and management of elephant population in Assam.

(Sandeep Kumar, IFS)

PCCF (WL) & CWLW, Assam

DISCLAIMER:

The geospatial data used in this report have been sourced from reliable platforms; however, the Assam Forest Department cannot guarantee the absolute accuracy of the data and spatial maps presented herein. The information is subject to revision following further studies and field verification.

CONTENTS

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| Chapter **01** | **INTRODUCTION** |

The Asian elephant (*Elephas maximus indicus*), a species that embodies both ecological balance and cultural pride, serves as a flagship of India's biodiversity and proudly holds the title of the nation's heritage animal. Listed under Schedule I of the Wildlife Protection Act, 1972, it receives the highest level of legal protection in India. Globally, the species is categorized as Endangered by the International Union for Conservation of Nature (IUCN) due to a decline in its population by over 50% in the past three generations (IUCN, Red List 2010). The Asian elephant faces increasing threats from habitat fragmentation, poaching, and rising human-elephant conflict.

These magnificent creatures, classified as 'mega herbivores,' require vast tracts of natural landscapes such as forests and grasslands, which provide essential resources like food, water, and shade. Due to their immense size and dietary needs, elephants play a crucial role in shaping ecosystems, maintaining forest health, and facilitating seed dispersal.

India is home to nearly **60%** of the world's Asian elephant population, making it a global stronghold for the conservation of the species (Bist, 2002; Project Elephant Directorate, 2011). However, their current range in India is only a fraction—about **3.5%**—of their historical range, which once extended across the entire Indian subcontinent, except for arid regions (Sukumar, 2011).

Today, wild elephants in India are primarily confined to four major regions:

- The foothills of the Himalayas in the north
- The northeastern states
- The forests of east-central India
- The forested tracts of the Western and Eastern Ghats in southern India

1.1 Elephants in Northeastern India

In northeastern India, elephant populations extend across the Himalayan foothills from northern West Bengal into Assam, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, and Meghalaya. These ranges are contiguous with the forests of Bhutan, Bangladesh, and possibly Myanmar, facilitating some transboundary movements. The region supports approximately **9,000 to 9,500 elephants**, making it one of the most important landscapes for their conservation.

Assam stands out as a critical stronghold for elephants in the region, hosting around **5,700 elephants** (MoEFCC, 2017). With a forest cover of **28311.5 Sq Km** - which constitutes approximately **36%** of the state's geographical area- Assam Provides a significant portion of suitable habitat for elephants (ISFR 2021). Approximately **19.8%** of these areas fall under National Parks and Wildlife Sanctuaries. This diverse mosaic of forests, grasslands, and wetlands plays a pivotal role in sustaining viable elephant populations and addressing the ongoing challenges posed by habitat loss and human-elephant conflict.

1.2 Conservation Challenges

Asian elephants in Assam, much like elsewhere in India, face severe threats from poaching for ivory and the loss, shrinkage, and degradation of their natural habitats. The fragmentation of available habitats has confined elephant populations to isolated pockets, or "habitat islands," which are often inadequate for their wide-ranging needs. As a result, elephants frequently move into human-dominated landscapes, leading to increased human-elephant conflict.

Given the significance of Assam in elephant conservation, understanding the current distribution and population trends of elephants is crucial for informed management and conservation planning. This report on the Synchronized Elephant Population Estimation 2024 provides valuable insights into the status of elephant populations across Assam and aims to guide future conservation strategies to ensure the long-term survival of this majestic species.

Fig 1.1: Past and present distribution of Elephants in India and forest landscape of Assam
▼
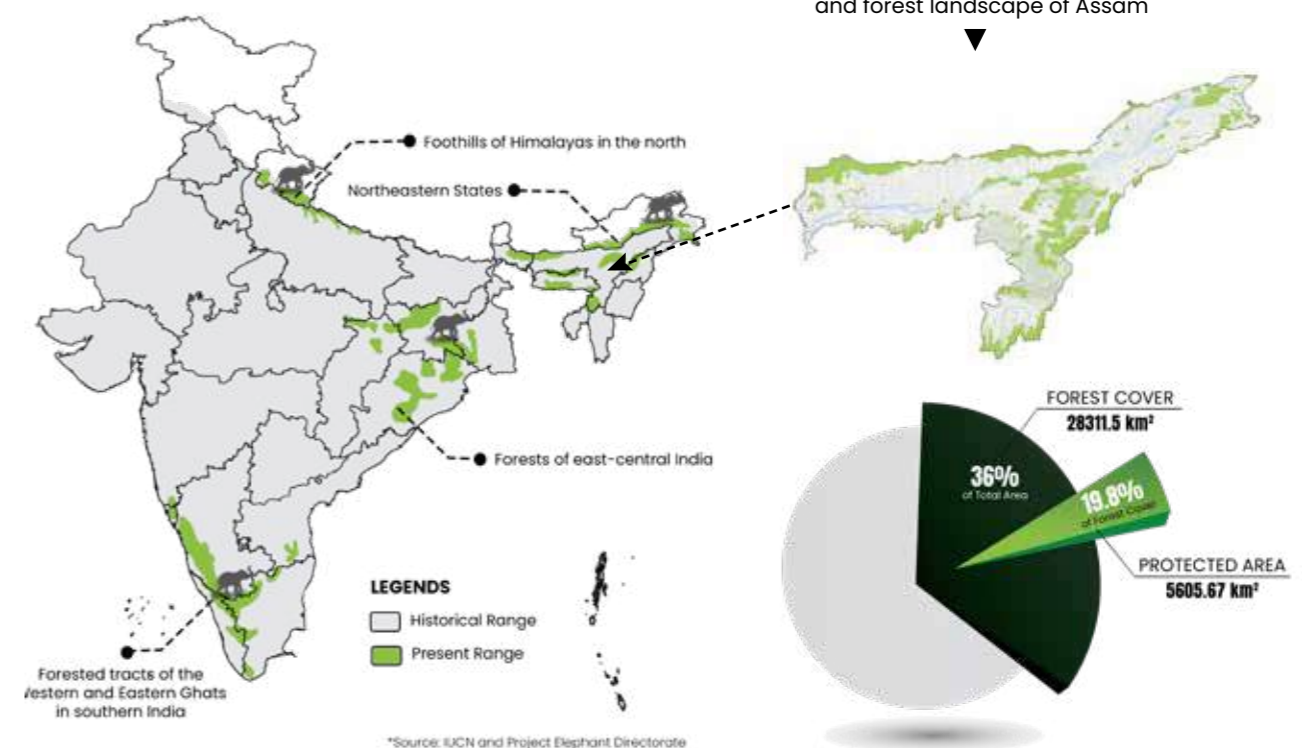
© Shamik Sanyal

| Chapter **02** | **ELEPHANTS IN ASSAM** |

Elephants have always been an integral part of Assam's mythology, folklore, and cultural heritage. The association between elephants and the region dates back centuries, symbolizing strength, power, and royal authority. One historical example of this cultural connection is in the official seal of Kumar Bhaskar Varma, the great king of Assam (594 to 650 AD), which bore the image of an elephant. Elephants are also deeply embedded in Assamese folklore, frequently appearing in stories and art. Their significance is further highlighted in ancient texts like the Hasti-vidyarnava, a comprehensive treatise on elephant management, which discusses everything from elephant behaviour to their cultural and symbolic importance. Such literature reflects, not only the reverence for elephants, but also the deep understanding of their role within Assam's environment and society. These cultural ties highlight their continued importance as symbols of heritage and keystone species, shaping Assam's landscapes through their ecological roles.

Fig 2.1: The official seal of Kumar Bhaskar Varma


Fig 2.2: Elephants in Assamese art

2.1. Forest Landscapes of Assam and Elephants

Elephants in Assam inhabit a diverse and complex forested landscape, stretching from the rugged Himalayan foothills in the north to the fertile Brahmaputra plains in the south. The state's **28311.5 sq km** of forest cover constituting **36%** of the state's total geographical expanse, is a mosaic of tropical rainforests, moist deciduous forests, and semi-evergreen forests. Interspersed within these forests are wetlands and grasslands that create rich habitats, offering food, shelter, and water, especially during dry seasons. This variety of habitats supports a wide range of biodiversity, including Assam's significant elephant population.

Biogeographically, Assam falls under the North-East Biogeographic Zone (Zone 9), divided into two distinct biotic provinces: the Brahmaputra Valley (9A) and the North-Eastern Hills (9B). The Brahmaputra Valley is characterized by its swamps, marshes, grasslands, and moist deciduous forests, making it an important wildlife corridor that facilitates the movement of large mammals like elephants and tigers. Seasonal flooding in this region enriches the riverine forests, creating a dynamic landscape that supports high biodiversity. In contrast, the North-Eastern Hills are dominated by dense tropical wet evergreen and semi-evergreen forests, providing a safe haven for many unique species, thus making it a biodiversity hotspot.

Such diversity and connectivity of habitats are reflected in Assam's network of Elephant Reserves, which safeguard the long-term survival of elephant populations across the state. From the transboundary Chirang-Ripu and Sonitpur Elephant Reserves to the ecologically significant Kaziranga-Karbi Anglong Elephant Reserve, these protected areas provide critical habitats that support elephants throughout their range. The reserves play a pivotal role, not only in conserving Assam's elephant population but also in mitigating human-elephant conflict by ensuring secure movement corridors for the species.

Legend
- National Parks
- Wildlife Sanctuaries
- Elephant Reserves
- Reserved Forests
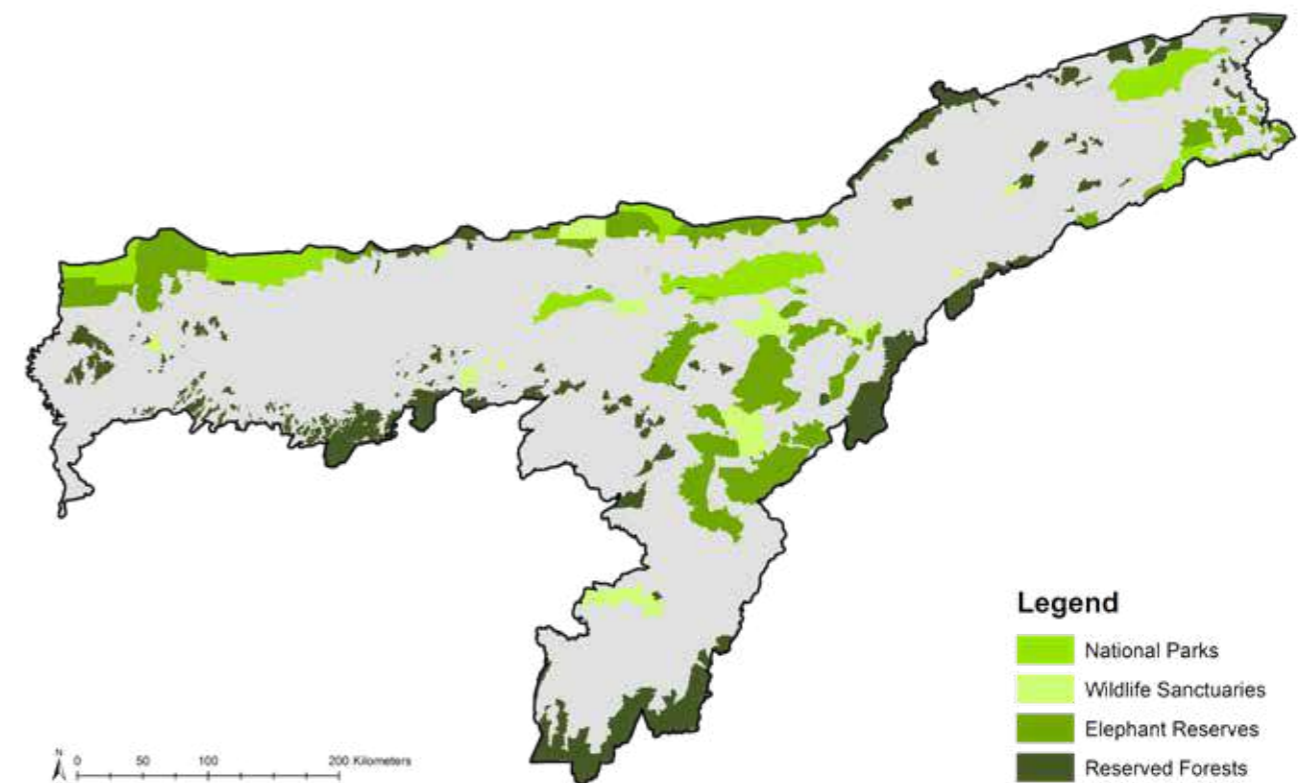
Map 2.1: Forest Landscape of Assam

2.1.1. Elephant Reserves in Assam

1. **Chirang-Riphu Elephant Reserve:** Spanning 2,600 km², Chirang-Ripu Elephant Reserve forms a critical corridor connecting Assam to Bhutan, bordered by Buxa Tiger Reserve in West Bengal and Phipsoo Wildlife Sanctuary in Bhutan. It plays a vital role in supporting transboundary elephant movement and maintaining landscape connectivity.

2. **Sonitpur Elephant Reserve:** Sonitpur Elephant Reserve, spanning 1,420 km², is situated in northern Assam and shares its northern boundary with Kameng Elephant Reserve in Arunachal Pradesh, making it a crucial transboundary habitat for elephants in this region.

3. **Dehing Patkai Elephant Reserve:** Dehing-Patkai Elephant Reserve spans 937 km², bordering South Arunachal Elephant

Reserve and Singphan Elephant Reserve. Known for its rich tropical rainforests, it is a key stronghold for biodiversity conservation in eastern Assam.

4. **Kaziranga-Karbi Anglong Elephant Reserve:** With an area of 3,270 km², Kaziranga-Karbi Anglong Elephant Reserve is a central habitat in Assam. It connects with Dhansiri-Lungding Elephant Reserve in the south, forming a contiguous habitat that supports large elephant populations and other megafauna.

5. **Dhansiri-Lungding Elephant Reserve:** Covering 2,740 km², Dhansiri-Lungding Elephant Reserve links Kaziranga-Karbi Anglong Elephant Reserve in the north with Intanki Elephant Reserve in Nagaland to the east, ensuring seamless habitat connectivity for elephant populations between Assam and Nagaland.
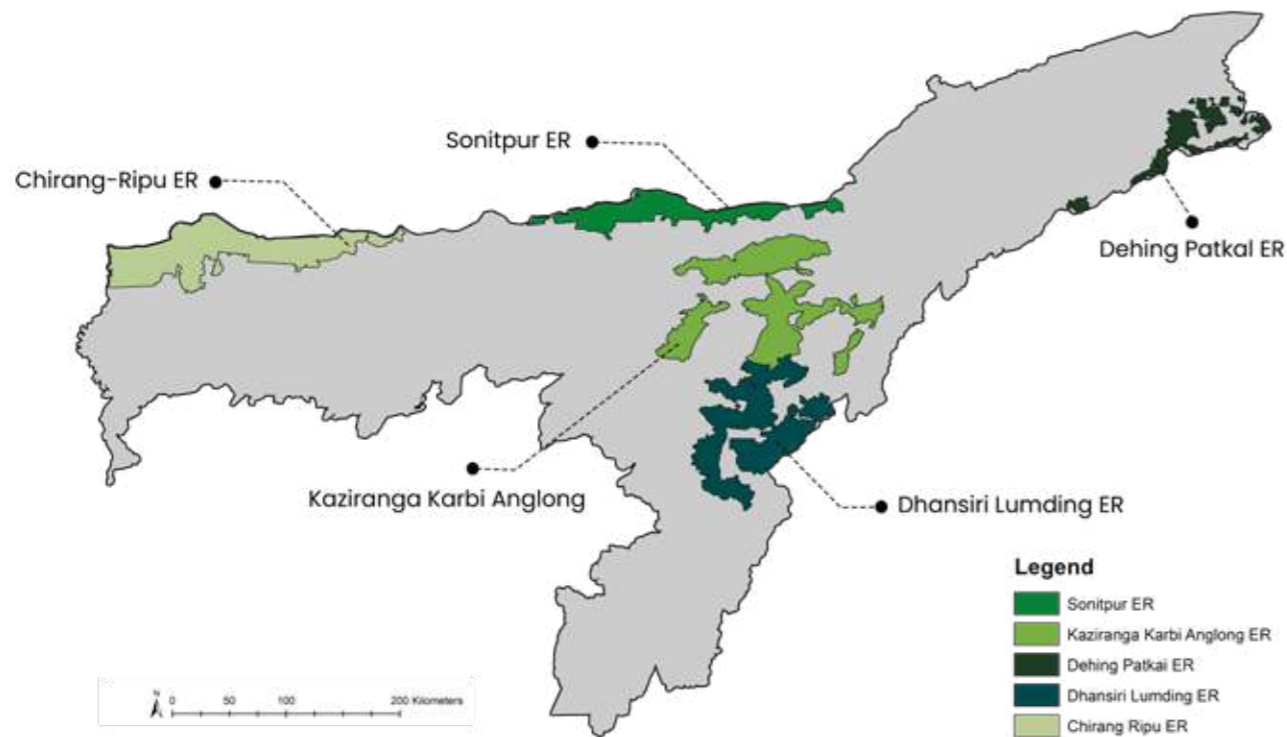
2.1.2. Other Elephant Ranges in Assam

Alongside these reserves, other significant elephant habitats exist within the additional elephant ranges spread across Assam.

1. **Goalpara Elephant Range**: Covering 244.17 km², this range stretches from the Garo Hills border in the south to the Brahmaputra River in the north, encompassing both forest and non-forest areas of the Goalpara Forest Division.

2. **Kholahat-Bogaikhas Elephant Range:** Spanning across parts of Nagaon Forest Division, Kamrup East and West Forest Divisions, and Guwahati Wildlife Division, this range lies along the border of the Khasi Hills, within the civil districts of Nagaon and Kamrup.

3. **Patharia-Innerline Elephant Range:** Situated in the southern and western forests of the former Cachar district, this range provides a habitat in the southernmost part of Assam.

4. **Kakoi-Dibru-Kokilamukh Elephant Range:** An extensive range covering 1,213.64 km², this range spans forest and non-forest areas along the Arunachal Pradesh border. It stretches from the Ranga Reserve Forest to the Dibru-Saikhowa National Park, including significant areas of Majuli Island and the banks of the Brahmaputra River.

These reserves and ranges provide critical habitats for Assam's elephant population, although increasing habitat fragmentation poses significant challenges for maintaining connectivity between them.

2.2. Elephant Population Estimation in Assam

Elephant population estimation in Assam has evolved significantly over the past few decades, driven by the state's need to develop effective management strategies for its wild elephant population. Various methods have been tried, refined, and adapted to fit the unique landscape of Assam.

MAP 2.2: Elephant Reserves in Assam
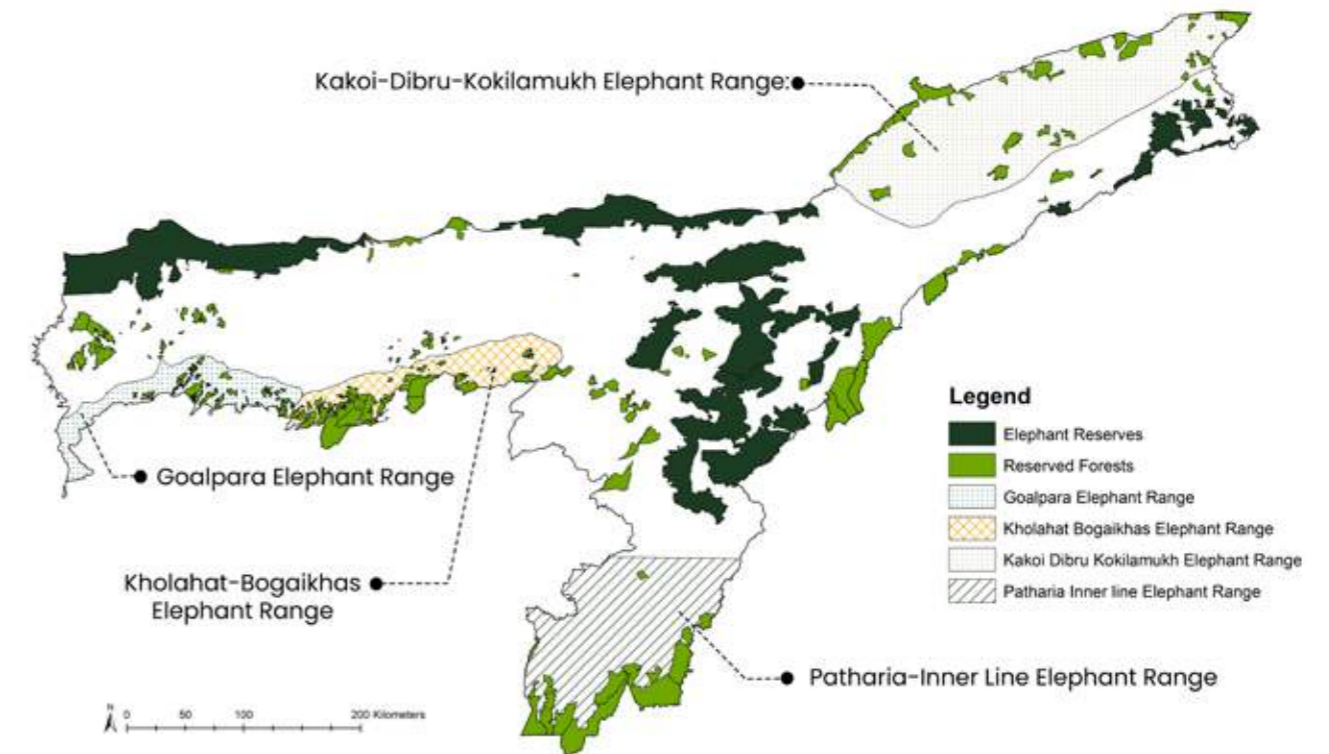
MAP 2.3: Other Elephant Ranges in Assam

History of Elephant Estimation Methodology in Assam

Pre-1976: Prior to the establishment of the Elephant Specialist Group, no reliable data on wild elephant populations were available in the country, and Northeast India's population data was notably absent from initial national reports.

1979: The first systematic attempt to estimate Assam's elephant population was conducted, experimenting with different techniques in selected areas.

1981: The Northeast India Taskforce of the Asian Elephant Specialist Group (AESG) began conducting formal estimations, with the Direct Visual Total Count (DVTC) method being used to estimate elephant populations in Assam. This method was first applied on the north bank of the Brahmaputra River in Darrang Division.

1982: The DVTC method was applied in various forest areas, including Kaziranga National Park, where elephants have been counted alongside rhinos since 1966. A variant of DVTC, known as Deb Roy's Method, was also trialed in the Manas Tiger Reserve, but it was later deemed an undercount and subsequently verified by the DVTC method.

1993 and Beyond: The Assam Forest Department adopted a modified DVTC method after several trials and experiments. This methodology has been used for all subsequent estimations, including those in 1993, 1997, 2002, 2008, 2011, and 2017. The 2024 synchronized estimation marks the seventh official exercise conducted in the state.

National-Wide Estimation of Elephants

The first All-India Elephant Estimation covering all elephant habitats was conducted in 1993, with subsequent estimates in 1997, 2002, 2008, 2011, and 2017. These estimations have provided a clear picture of elephant population dynamics across Assam. The 2024 synchronized estimation will be the seventh such exercise.
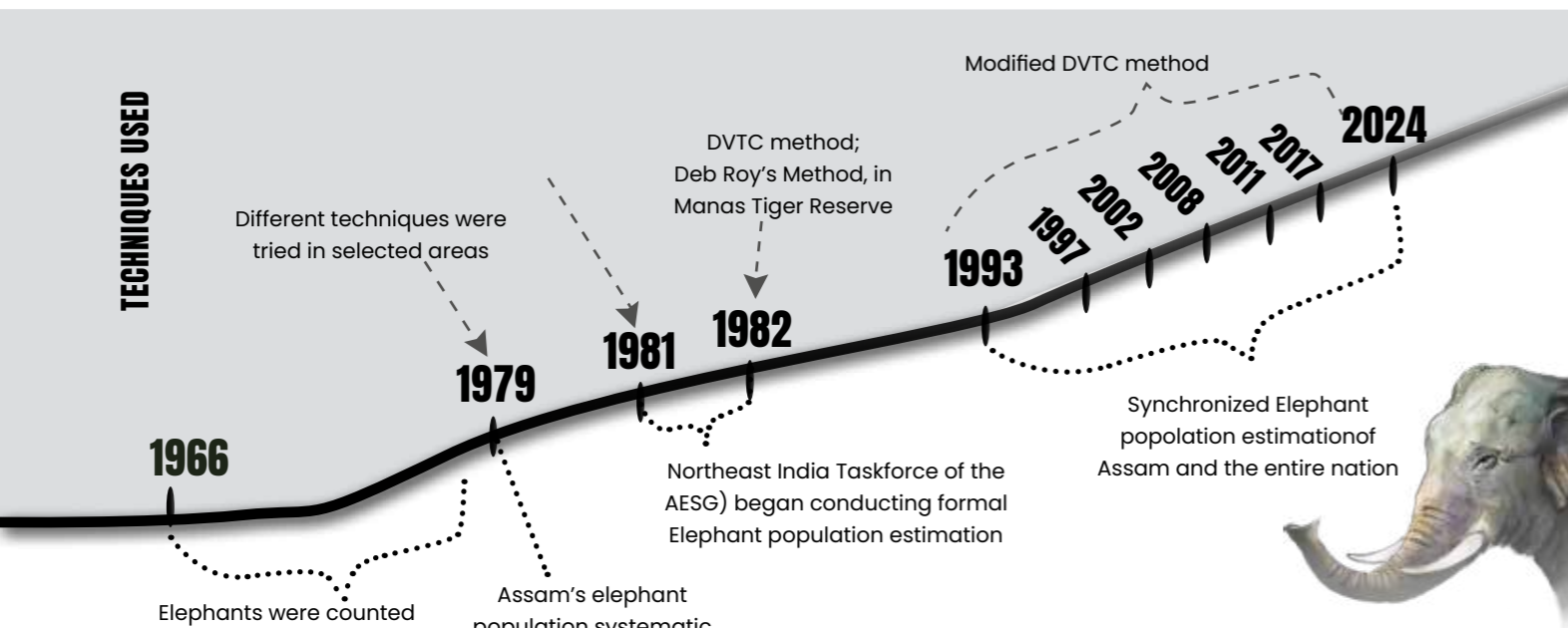
Fig 2.3: Historical timeline of Elephant Estimation Methodology In Assam

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METHODOLOGY

3.1. Methods

3.1.1. Direct Visual Total Count (DVTC)

The Direct Visual Total Count (DVTC) method remains the primary approach for elephant population estimation in Assam. The entire estimation area is divided into manageable blocks based on terrain, vegetation density, and known elephant presence. Each block is assigned to an Estimating Unit (EU), which is equipped with maps, GPS devices, binoculars, and data collection sheets to record sightings and relevant information.

The EUs systematically traverse their assigned blocks, recording the number of elephants sighted, herd composition, and other indicators like dung and footprints. Additionally, the state's elephant habitats are stratified into high-density, medium-density, and low-density zones to focus efforts where they are most needed.

3.1.2. Block Sample Count

To complement the DVTC method, a Block Sample Count is conducted in randomly selected blocks. This statistical method is designed to achieve 60-75% accuracy, providing robust estimates for blocks that may not be fully covered by the ETs. This sampling method enhances the reliability of the overall population estimates.

3.2. PROTOCAL

3.2.1. Preliminary Survey

A Preliminary Survey is conducted before the estimation to ensure smooth execution. This survey includes data gathering and mapping the area for estimation, focusing on:

- Procuring SOI maps (1:50,000 scale) for each division, marking forest boundaries, camps, ranges, roads, rivers, and villages.

- Dividing forested and non-forested areas into Estimation Blocks, each roughly 8-10 sq. km, ensuring field teams can cover their assigned areas in a day.

- Identifying traditional migration routes, water sources, salt licks, and other features such as crop fields and human settlements, which may influence elephant movements.

- Stratifying blocks into high, medium, and low-density zones based on historical records and field observations.

- This survey forms the foundation for the estimation process, ensuring that teams are well-prepared and have a clear understanding of the areas they will be working in.

3.2.2. The 8-Day Protocol

The elephant estimation in Assam follows a structured 8-day protocol that includes both reconnaissance and actual counting phases. The detailed breakdown is as follows:

- **Day 1: Briefing and Positioning**: All field staff and officers are briefed on the methodology and positioned at starting points within the designated blocks.

- **Day 2 to Day 4: Reconnaissance and Sighting:** Teams patrol their assigned blocks, recording elephant sightings, dung, footprints, and other signs. Herd compositions, movement patterns, and sighting locations are marked on maps.

- **Day 5: Detection and Stratification**: The teams finalize a stratified map of the blocks, marking areas of high, medium, and low elephant density. In some cases, Koonkie elephants are deployed for better coverage.

- **Day 6: Trial Count:** A trial count is conducted, where the teams simulate the final count. Data collected during this day is equally important as the final count.

- **Day 7: Final Count**: The final estimation is conducted. Teams traverse the blocks from opposite directions to avoid double-counting. GPS readings and herd composition are recorded.

- **Day 8: Sample Block Count:** 10% stratified sampling of the counted blocks is conducted.

Fig 3.2: The 8-Day Protocol

3.2.3. Estimation Unit

Following the 8-day protocol, the Estimation Unit (EU) is the key operational body responsible for the fieldwork. Each EU is equipped and structured to cover its designated block efficiently within the scheduled time frame. The composition and resources provided to each unit are as follows:

Team Composition: Each Estimation Unit is comprised of:

- Two Koonkie elephants (in high and medium-density strata).

- Two recorders responsible for logging all observations.

- Two armed guards for protection.

- Mahouts to guide the Koonkie elephants.

- Additional field staff for logistics and assistance.

Resources: Each EU is equipped with:

- A detailed map of their assigned block.

- GPS devices for accurate recording of sightings.

- Binoculars for identifying elephants from a safe distance.

- Data sheets and formats to log population estimates, herd composition, age, sex, and other vital information.

- Camping gear and supplies for teams working in remote areas where overnight stays are necessary.

- Elephant gear and food supplies for the Koonkie elephants.

Field Protocol:

- The EU operates from early morning to evening, traversing the block and recording sightings of elephants. Observations include herd composition, physical attributes of individuals, and the timing and location of sightings.

- Each team is instructed to start from specific starting points and end at predetermined ending points, ensuring no double-counting of elephants occurs between blocks.

3.3. Training of Field Staff

Training is a vital part of the estimation process. Officers attended Training of Trainers (TOT) programs at Assam State Zoo and Kaziranga National Park in January 2024 to prepare frontline staff across the state.

The training focused on:

- Identifying herds and individual elephants.
- Using GPS devices and accurately recording observations.
- Preventing double-counting and refining block stratification.

The training was completed between January and February 15, 2024, ensuring that the field teams were well-prepared for the estimation exercise.

3.4. EPE 2024

The Elephant Population Estimation (EPE) 2024 marks the seventh statewide exercise undertaken by the Assam Forest Department. Preparations commenced in January 2023 under the leadership of Sri M.K. Yadava, IFS, with an Expert Committee constituted vide O.O. No. 25 dated 20.01.2023. The committee included:

1. Sri B.N. Talukdar, AFS (Retd.) – Chairman
2. Sri Pankaj Sarma, AFS (Retd.) – Member
3. Sri Kaushik Barua (Member, SBWL, Assam) – Member
4. Md. Shafikur Rahman, AFS, DCF (Enforcement) – Member Secretary

Comprehensive training modules were developed for Trainers of Trainers (ToT) and Field Officers, with sessions held in February and March 2023. However, the exercise, initially scheduled for April 2023, was postponed due to unforeseen circumstances.

In December 2023, under the leadership of Sri Sandeep Kumar, IFS, the Expert Committee was reconstituted vide O.O. No. 328 dated 21.12.2023. Refresher training sessions were conducted in January 2024 at Guwahati, Manas, and Kaziranga, followed by Division-level training in February.

The estimation covered 1,536 blocks across Reserve Forests, Protected Areas, and Revenue Areas, engaging 5,743 personnel. Coordination with neighboring states ensured comprehensive and seamless coverage. Central observers were appointed to ensure transparency. The exercise was successfully conducted between 20th and 27th February 2024.

3.5. Data Collection and Analysis

Once the 8-day protocol is complete, each Divisional Forest Officer (DFO) submits a compiled report to the office of the Chief Wildlife Warden, through their respective CCFs/ CFs (Zonal Officers).

After receiving the compiled data and maps from each division, a notified committee under the guidance of the PCCF(WL) & CWLW, Assam analyses the data.The analysis focuses on:

- Elephant population estimates by Elephant Reserve.

- Age/ sex ratio estimation.

- Kernel Density

- Comparison of current population data with previous estimates.

CLASS	SEX	SHOULDER HEIGHT (CM)	
		MIN	MAX
Calf	-	upto 120	
Juvenile	Male	121	150
Sub-adult	Female	151	240
	Male	151	210
Adult	Female	Above 240	
	Male	Above 210	

Chapter
04

RESULTS

The Synchronized Elephant Population Estimation 2024 was conducted across all **43 forest divisions** of Assam between 20th February and 27th February 2024, adhering to the methodologies and 8-day protocols outlined in the previous chapter. Data collected from all estimation units were systematically compiled and analysed to produce the final results. A total of **5,828 elephants** were counted from these divisions. Out of the 43 forest divisions, elephants were recorded in **33 divisions**, while 10 divisions — Kokrajhar Wildlife, Barak Valley Wildlife, North Kamrup, Aie Valley, Dhubri, Cachar, Karimganj, Parbotjhora, Baksa, and Dima Hasao East — did not report any elephants during the estimation period. However, occasional usage by herds and some solitary individuals has been reported from some of these areas, indicating the transient nature of elephant movement and habitat use.

4.1. Overview of the Population Estimation

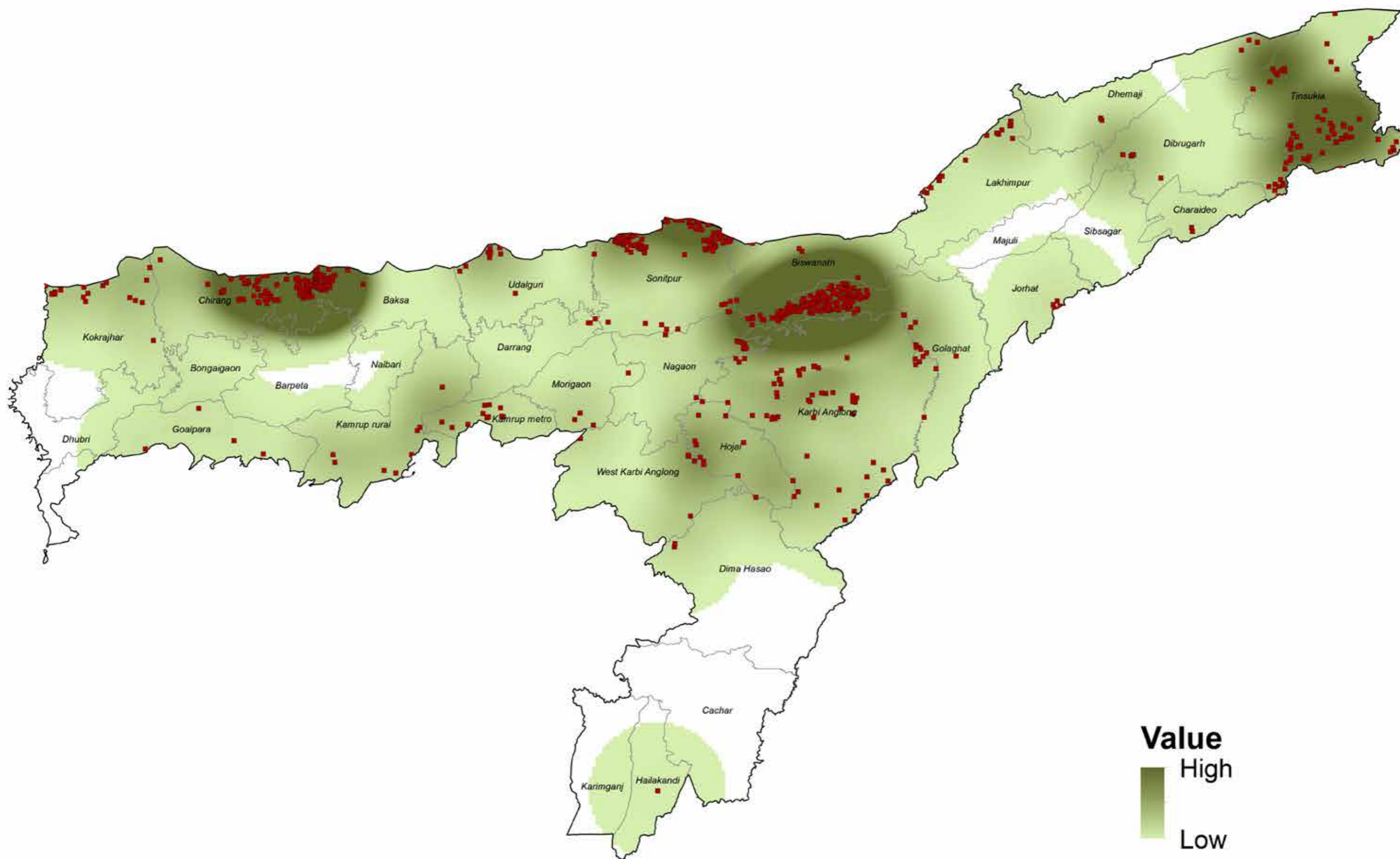## 4.1.1 Elephant Population Estimated in Various Forest Divisions of Assam

Table 4.1: Details of the number of Elephants counted in various Forest Divisions of Assam

S. NO.	FOREST DIVISION	NO OF BLOCKS	ADULT					SUB-ADULT				JUVENILE				CALF	SOLITARY			TOTAL
			T	M	G	U/S	F	T	M	U/S	F	T	M	U/S	F		T	M	G	
1	Manas National Park & Tiger Reserve	48	79	129	10	87	587	47	46	203	86	16	20	131	21	286	8	13	4	1773
2	Kokrajhar Willdife Division	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Mangaldoi Wildlife Division	12	1	0	0	0	5	0	0	0	2	0	1	0	0	5	0	2	0	16
4	Western Assam Wildlife Division	33	11	24	1	37	115	2	16	24	29	1	9	50	7	51	5	18	1	401
5	Tinsukia Wildlife	25	0	10	0	15	31	0	9	19	28	0	10	14	21	24	0	3	0	184
6	Eastern Assam Wildlife Division	75	55	40	3	1	515	11	15	19	98	11	21	18	49	290	35	24	3	1208
7	Biswanath Wildlife Division	22	0	2	0	1	13	1	1	1	9	0	2	7	3	13	5	2	0	60
8	Nagaon Wildlife Divison	14	2	6	0	10	1	0	0	0	1	0	0	0	0	0	0	0	0	20
9	Guwahati Wildlife Division	9	0	8	0	0	6	0	0	0	0	0	0	3	0	4	0	0	0	21
10	Barak Valley Division	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Doomdooma Division	39	3	23	1	1	62	3	14	2	1	0	11	3	3	40	0	0	0	167
12	Digboi Division	121	18	24	2	68	66	9	7	25	12	12	9	20	8	61	0	7	0	348
13	Dibrugarh Division	30	0	0	0	5	33	0	1	21	1	1	0	17	0	19	0	4	2	104
14	Sibsagar Division	25	1	0	0	0	6	0	3	0	3	0	1	0	3	3	1	0	0	21
15	Majuli Division	3	0	1	1	0	0	0	0	0	1	0	0	0	2	1	0	0	0	6
16	Jorhat Division	14	2	0	0	0	9	0	0	4	0	0	0	3	0	0	0	0	0	18
17	Golaghat Divison	25	1	10	0	0	25	2	3	17	0	2	2	12	4	21	0	2	0	101
18	Nagaon South Division	59	4	22	1	6	60	3	5	12	23	0	5	27	2	47	0	1	0	218
19	Nagaon Division	55	1	14	0	5	26	1	1	18	2	0	1	8	0	19	2	6	0	104
20	Sonitpur West Division	22	2	3	0	0	2	0	0	0	0	0	1	0	0	1	0	1	0	10
21	Sonitpur East Division	56	0	4	1	4	12	0	3	2	6	0	0	3	0	4	2	3	0	44
22	Lakhimpur Division	34	1	19	1	0	15	0	10	0	3	0	3	0	1	4	0	0	0	57
23	Dhemaji Division	22	0	3	0	3	4	0	1	1	0	0	0	0	0	2	0	0	0	14
24	Kamrup East Divison	52	14	7	0	0	47	8	3	2	1	3	0	5	4	23	2	1	0	120
25	Kamrup West Division	78	4	10	2	1	18	2	8	0	9	2	5	0	3	15	0	0	0	79
26	Goalpara Division	20	0	14	2	0	12	0	3	3	0	0	4	0	0	4	0	0	0	42
27	North Kamrup Division	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Aie Valley Division	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Dhubri Division	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Cachar Divison	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Karimganj Divison	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Hailakandi Division	6	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
33	Kachugaon Division	33	5	7	0	11	14	0	2	3	3	0	0	8	3	8	0	0	0	64
34	Baksa Division	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Dhansiri Divison	32	2	14	0	8	27	1	5	2	4	0	2	8	11	12	0	1	0	97
36	Chirang Divison	7	0	7	0	20	19	0	0	8	0	0	0	7	0	12	0	0	0	73
37	Parbotjhora Division	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Haltugaon Division	14	0	9	0	0	15	0	3	1	4	0	1	3	1	4	1	3	0	45
39	Karbi Anglong East Division	114	8	20	0	10	92	1	9	5	24	0	10	7	17	28	1	0	0	232
40	Karbi Anglong West Divison	53	1	2	0	2	24	0	6	4	5	0	3	5	9	8	0	0	0	69
41	Hamren Division	35	5	7	0	1	28	4	3	3	10	2	4	2	6	13	0	0	0	88
42	Dima Hasao East Division	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	Dima Hasao West Division	66	0	3	0	0	4	0	3	0	3	0	0	3	0	3	0	2	0	21
	GRAND TOTAL	1536	220	442	25	296	1896	95	180	399	368	50	125	364	178	1025	62	93	10	5828

*Note: T-Tusker, M-Makhna, G-Ganesh, U/S-Unsexed, F-Female

Value

High

Low

Graph 4.1: Distribution of Elephants across Forest Divisions

| Division	Count
Hailakandi Division	3
Majuli Division	6
Sonitpur West Division	10
Dhemaji Division	14
Mangaldoi Wildlife Division	16
Jorhat Division	18
Nagaon Wildlife Divison	20
Guwahati Wildlife Division	21
Sibsagar Division	21
Dima Hasao West Division	21
Goalpara Division	42
Sonitpur East Division	44
Haltugaon Division	45
Lakhimpur Division	57
Biswanath Wildlife Division	60
Kachugaon Division	64
Karbi Anglong West Divison	69
Chirang Divison	73
Kamrup West Division	79
Hamren Division	88
Dhansiri Divison	97
Golaghat Divison	101
Dibrugarh Division	104
Nagaon Division	104
Kamrup East Divison	120
Doomdooma Division	167
Tinsukia Wildlife	184
Nagaon South Division	218
Karbi Anglong East Division	232
Digboi Division	348
Western Assam Wildlife Division	401
Eastern Assam Wildlife Division	1208
Manas National Park & Tiger Reserve	1773

NOTE:

Although both the Direct Visual Total Count and Sample Block Count methods were employed during the Elephant Population Estimation 2024, the data from the Sample Block Count was not utilized in calculating the total elephant numbers. This decision was made as the deviation observed in areas such as Kaziranga, Manas, and Nameri was found to be very negligible. Therefore, the Direct Visual Total Count data was considered sufficient for generating the final population estimates.

OVERALL DISTRIBUTION OF ELEPHANT POPULATIONS:

• Protected Areas (National Parks & Wildlife Sanctuaries): 68% of the total population.

• Managed Forests: 30.5% of the total population.

• Revenue Areas (Outside Forest Areas): 1.5% of the total population.

Graph 4.2: Pie Chart Representation of Proportion of the Elephant Populations across Different Areas
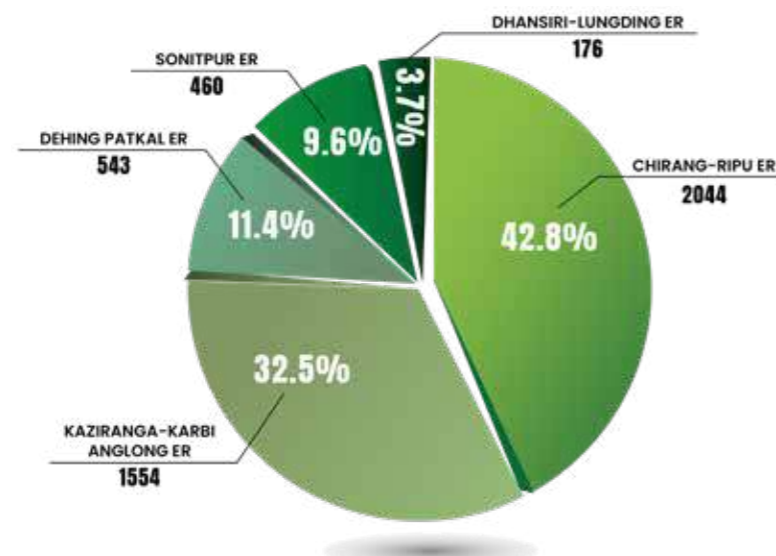

1.6% — OUTSIDE FOREST AREA 93
PROTECTED AREAS 3961 — 68%
30.4%
MANAGED FORESTS 1774
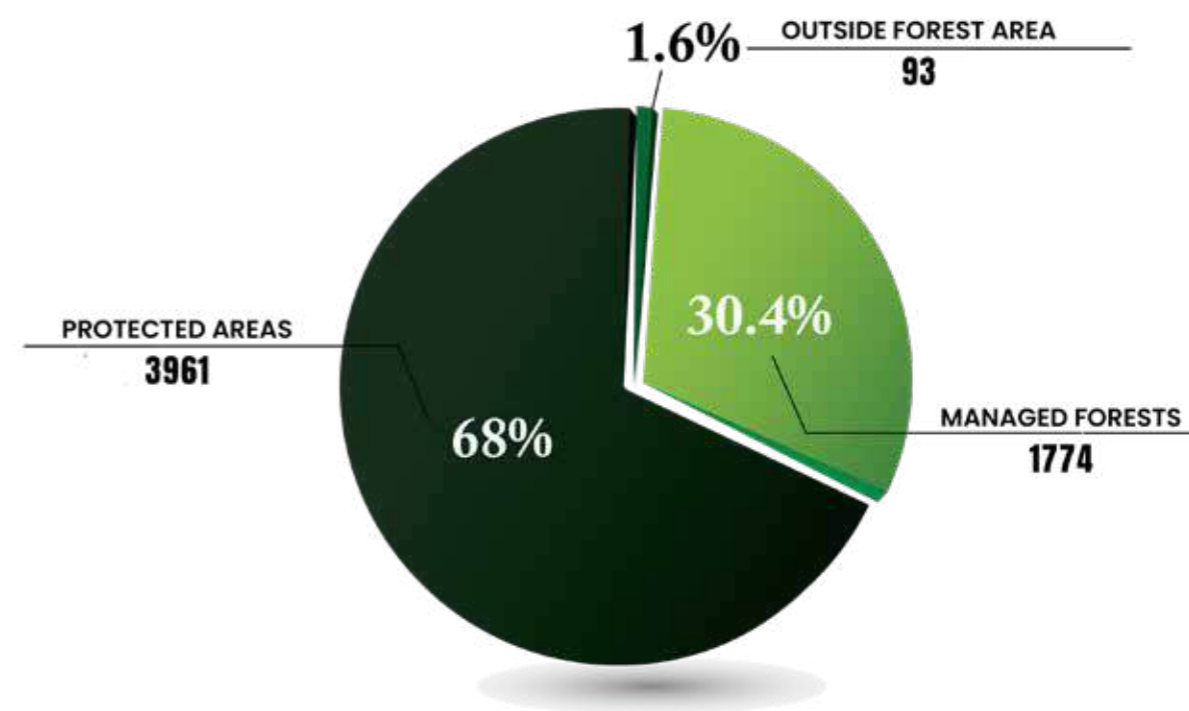
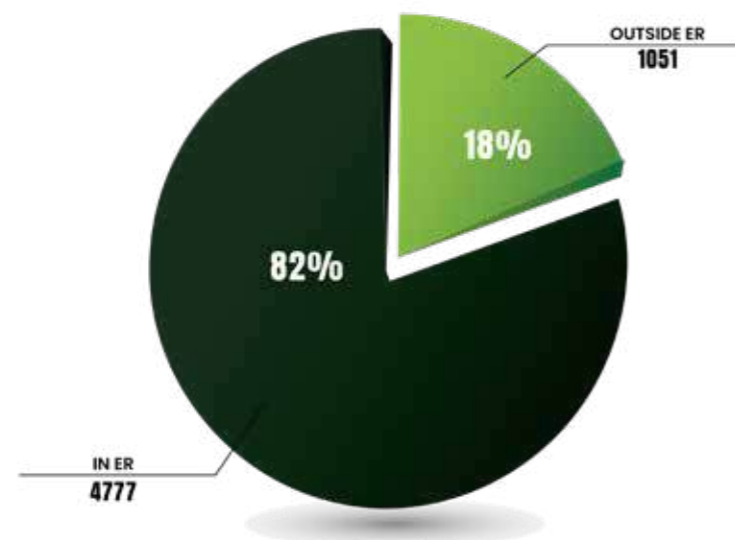## 4.1.2 Elephant Population Estimated in Various Elephant Reserves of Assam

Table 4.2: Details of the number of elephants counted in Elephant Reserves of Assam

ELEPHANT RESERVES	AREA SQ KM	ADULT					SUB-ADULT				JUVENILE				CALF	SOLITARY			TOTAL
		T	M	G	U/S	F	T	M	U/S	F	T	M	U/S	F		T	M	G	
Chirang-Ripu ER	2600	85	163	10	126	662	48	56	217	97	16	23	155	36	320	9	17	4	2044
Sonitpur ER	1420	14	31	2	41	129	2	19	26	35	1	10	55	7	58	7	22	1	460
Dehing Patkai ER	937	22	42	2	68	140	12	23	26	16	13	20	28	13	108	1	8	1	543
Kaziranga-Karbi Anglong ER	3270	64	78	3	15	626	13	25	36	134	11	33	31	70	339	43	30	3	1554
Dhansiri-Lungding ER	2740	3	17	0	5	48	0	8	10	14	0	8	24	11	27	0	1	0	176
TOTAL	10967	188	330	17	255	1597	75	127	313	294	41	94	290	133	850	60	78	9	4777

Graph 4.3: Distribution of Elephants across Elephant Reserves

DHANSIRI-LUNGDING ER 176
SONITPUR ER 460
DEHING PATKAI ER 543
CHIRANG-RIPU ER 2044
KAZIRANGA-KARBI ANGLONG ER 1554

3.7%
9.6%
11.4%
42.8%
32.5%

Graph 4.4: Distribution of Elephants in Elephant Reserves

OUTSIDE ER 1051
IN ER 4777
18%
82%

ELEPHANT POPULATIONS IN ELEPHANT RESERVES OF ASSAM: 2024

CHIRANG-RIPU ER 2044

SONITPUR ER 480

DEHING PATKAI ER 543

KAZIRANGA-KARBI ANGLONG ER 1554

DHANSIRI-LUNGDING ER 176

2044		Chirang-Ripu ER
480		Sonitpur ER
543		Dehing Patkai ER
1554		Kaziranga-Karbi Anglong ER
176		Dhansiri-Lungding ER
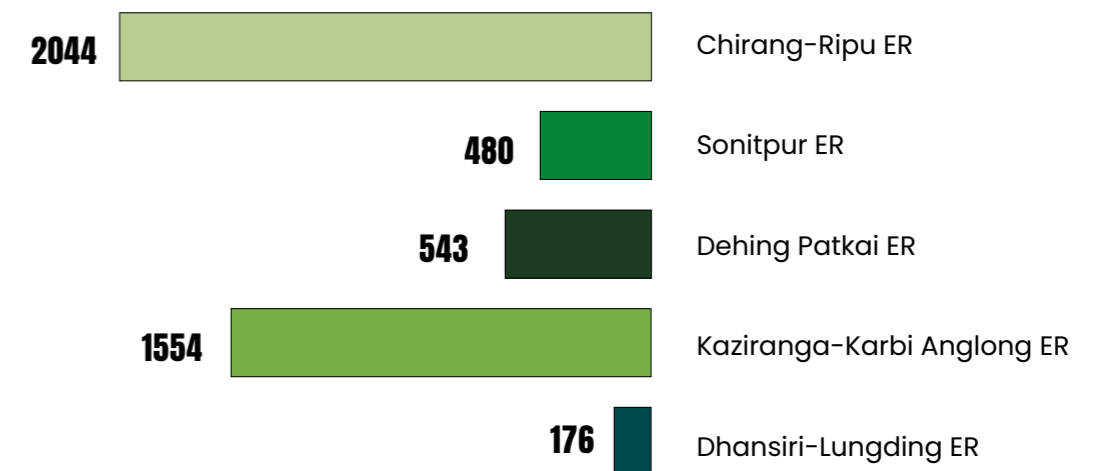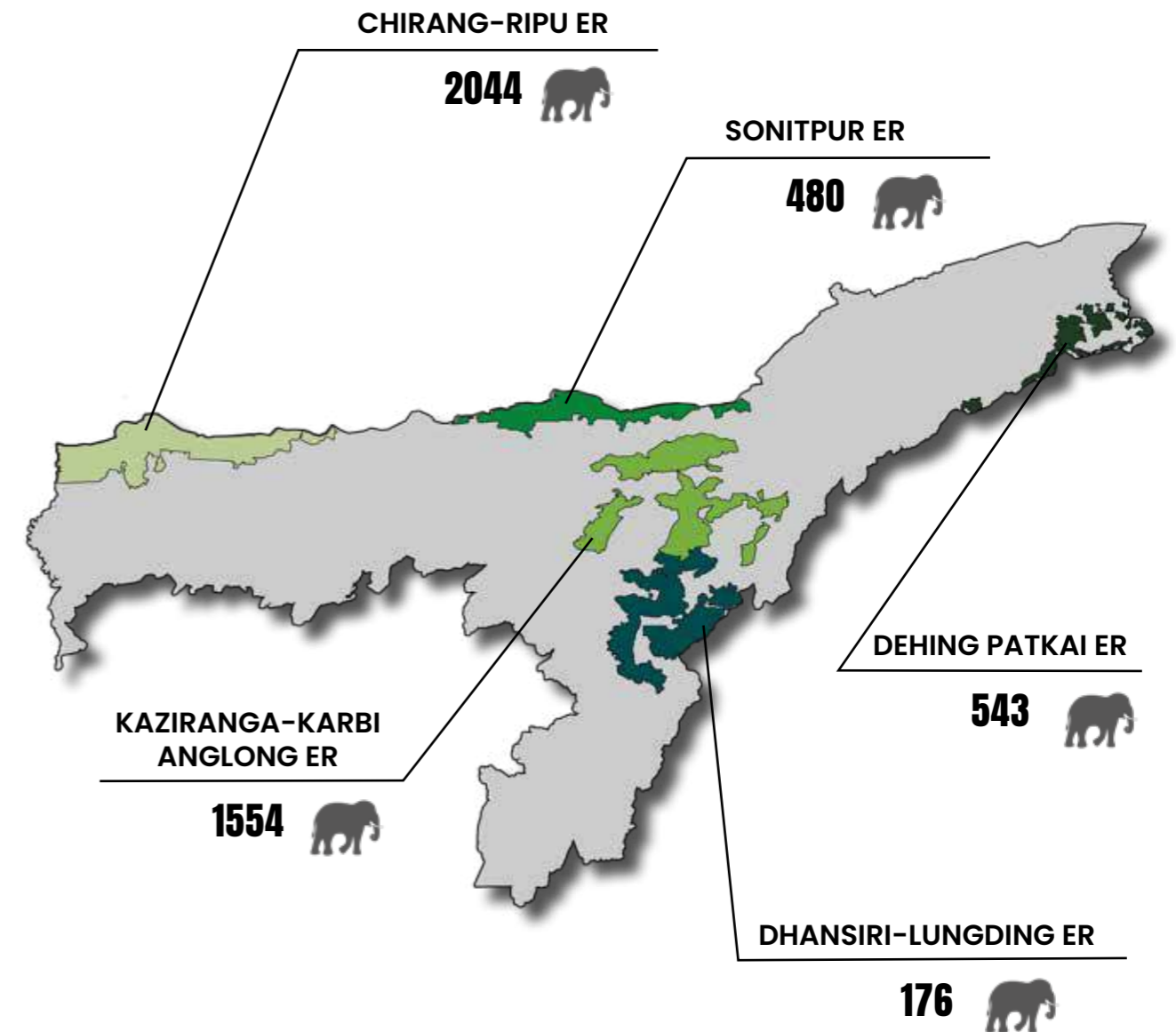
Map 4.2: Elephant Population in Elephant Reserves of Assam

Map 4.3: Elephant Population in Elephant Reserves of Assam

Chirang Ripu ER

Sonitpur ER

Dehing Patkai ER

Kaziranga Karbi Anglong ER

Dhansiri Lumding ER

Value
High

Low

N

0   50   100   200 Kilometers
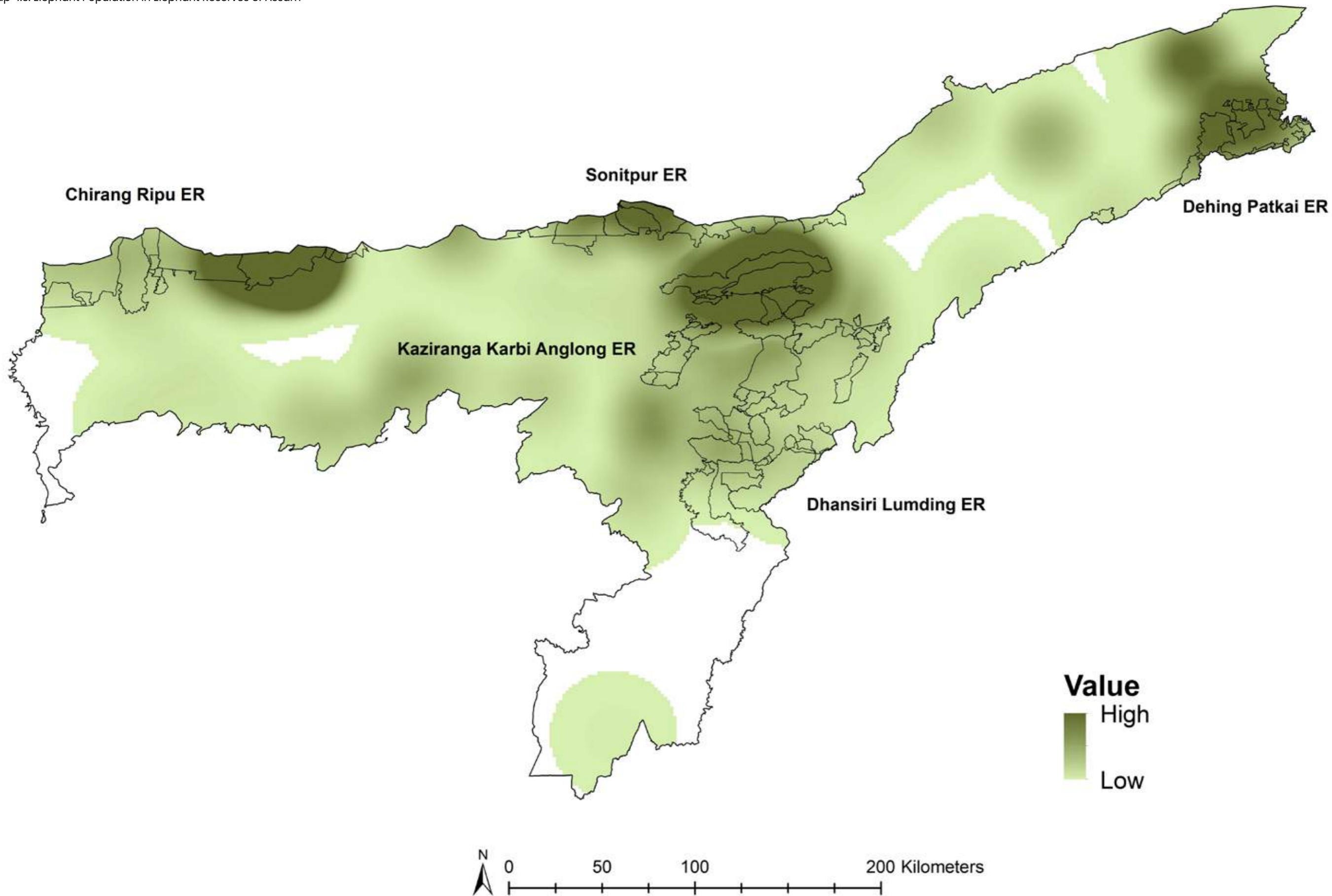
4.1.3 Elephant Population Estimated in Protected Areas of Assam

Protected Areas in Assam, National Parks and Wildlife Sanctuaries, are pivotal for the conservation and management of the state's elephant population. During the Synchronized Elephant Population Estimation 2024, a total of **3,961 elephants** out of the **5,828** estimated were recorded within the boundaries of Assam's National Parks and Wildlife Sanctuaries. This section presents a detailed breakdown of elephant populations across various Protected Areas.
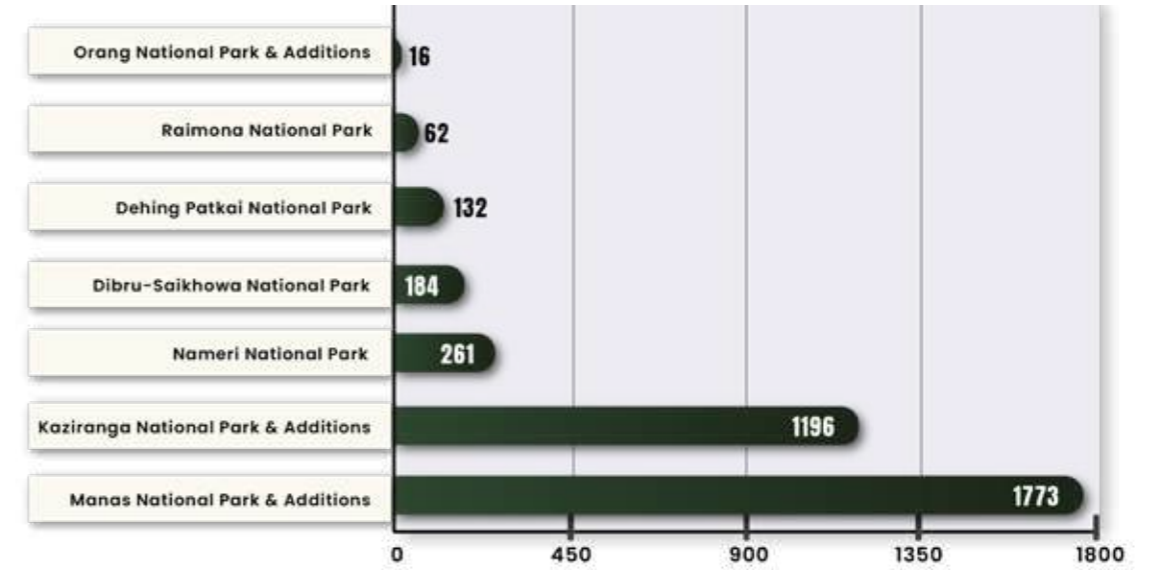
Table 4.3: Details of Elephants Counted in National Parks of Assam

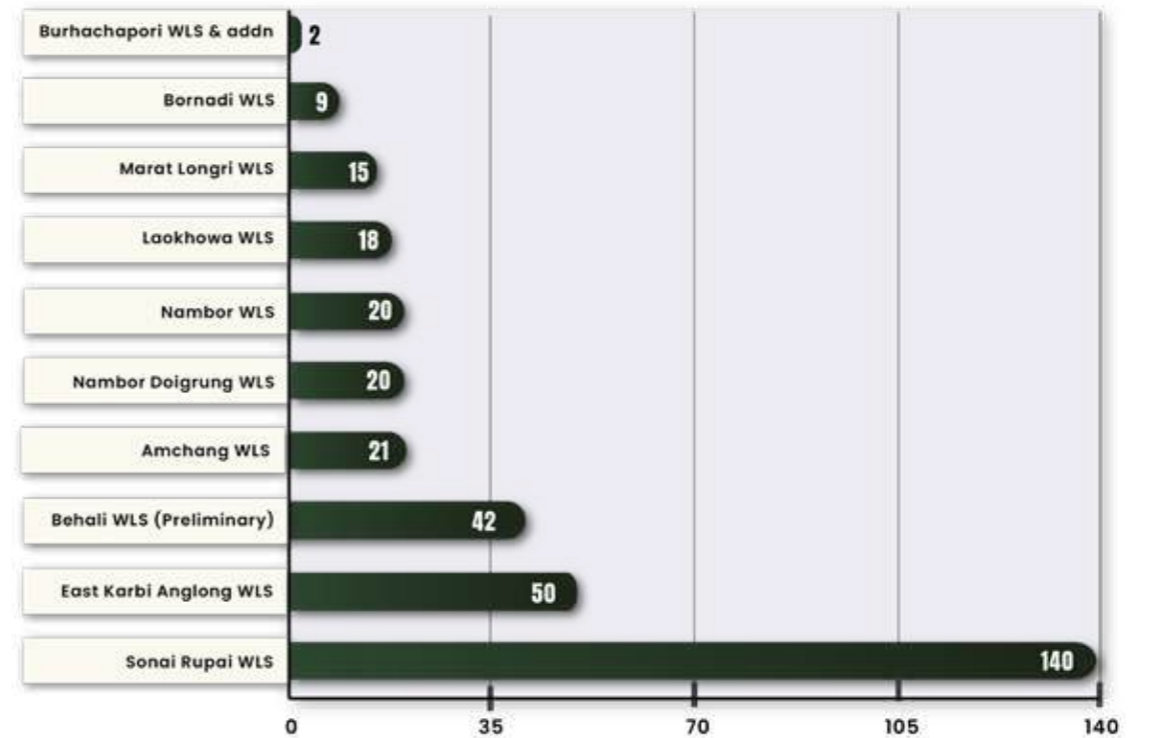| S. NO.	NATIONAL PARK (NP)	AREA (SQ KM)	ADULT					SUB-ADULT				JUVENILE				CALF	SOLITARY			TOTAL
			T	M	G	U/S	F	T	M	U/S	F	T	M	U/S	F		T	M	G	
1	Kaziranga NP & Additions	919.49	51	32	3	2	510	12	13	13	104	11	21	19	51	288	40	23	3	1196
2	Manas NP & Additions	850.00	79	129	10	87	587	47	46	203	86	16	20	131	21	286	8	13	4	1773
3	Nameri NP	200.00	7	12	1	9	84	2	12	12	26	0	8	28	7	37	3	12	1	261
4	Dibru-Saikhowa NP	340.00	0	10	0	15	31	0	9	19	28	0	10	14	21	24	0	3	0	184
5	Orang NP & Additions	279.60	1	0	0	0	5	0	0	0	2	0	1	0	0	5	0	2	0	16
6	Dehing Patkai NP	234.26	5	12	0	1	37	1	6	2	7	5	6	12	7	27	0	3	1	132
7	Raimona NP	422.00	5	6	0	10	14	0	2	3	3	0	0	8	3	8	0	0	0	62
	TOTAL	3245.34	148	201	14	124	1268	62	88	252	256	32	66	212	110	675	51	56	9	3624

Table 4.4: Details of Number of Elephants Counted in Wildlife Sanctuaries of Assam

S. NO.	WILDLIFE SANCTUARY (WLS)	AREA (SQ KM)	ADULT					SUB-ADULT				JUVENILE				CALF	SOLITARY			TOTAL
			T	M	G	U/S	F	T	M	U/S	F	T	M	U/S	F		T	M	G	
1	Amchang WLS	78.64	0	8	0	0	6	0	0	0	0	0	0	3	0	4	0	0	0	21
2	Barack-Bhuban WLS (Preliminary)	320.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Barnadi WLS	26.22	1	2	0	3	1	0	1	0	0	0	0	1	0	0	0	0	0	9
4	Behali WLS (Preliminary)	157.25	0	4	1	4	12	0	3	2	6	0	0	3	0	4	2	1	0	42
5	Bherjan-Borajan-Padumoni WLS	7.22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Borail WLS	326.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Burhachapori WLS & addition	215.98	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8	Chakrasila Wildlife Sanctuary	45.57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Deepor Beel WLS	4.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	East Karbi Anglong WLS	221.81	2	5	0	2	20	0	0	0	5	0	2	1	4	9	0	0	0	50
11	Garampani WLS	6.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Hollongobar Gibbon WLS	20.98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Laokhowa WLS	70.11	2	5	0	9	1	0	0	0	1	0	0	0	0	0	0	0	0	18
14	Marat Longri WLS	451.00	0	1	0	0	4	0	2	1	2	0	0	2	0	1	0	0	0	15
15	Nambor Doigrung WLS	97.15	1	5	0	0	5	0	0	2	0	0	0	0	2	4	0	1	0	20
16	Nambor WLS	37.00	0	0	0	1	10	0	2	0	4	0	1	0	2	0	0	0	0	20
17	Panidehing Bird WLS	33.93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Pobitora WLS	38.81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Sonai Rupai WLS	220.00	4	12	0	28	31	0	4	12	3	1	1	22	0	14	2	6	0	140
	TOTAL	2378.01	10	43	1	48	90	0	12	17	21	1	4	32	10	36	4	8	0	337

Graph 4.6: Distribution of Elephants Across National Parks

- Orang National Park & Additions: 16
- Raimona National Park: 62
- Dehing Patkai National Park: 132
- Dibru-Saikhowa National Park: 184
- Nameri National Park: 261
- Kaziranga National Park & Additions: 1196
- Manas National Park & Additions: 1773

Graph 4.6: Distribution of Elephants Across Wildlife Sanctuaries

- Burhachapori WLS & addn: 2
- Bornadi WLS: 9
- Marat Longri WLS: 15
- Laokhowa WLS: 18
- Nambor WLS: 20
- Nambor Doigrung WLS: 20
- Amchang WLS: 21
- Behali WLS (Preliminary): 42
- East Karbi Anglong WLS: 50
- Sonai Rupai WLS: 140

Graph 4.7: Breakdown of Elephants in Protected Areas

- WILDLIFE SANCTUARY 337 — 8.5%
- NATIONAL PARKS 3624 — 91.5%
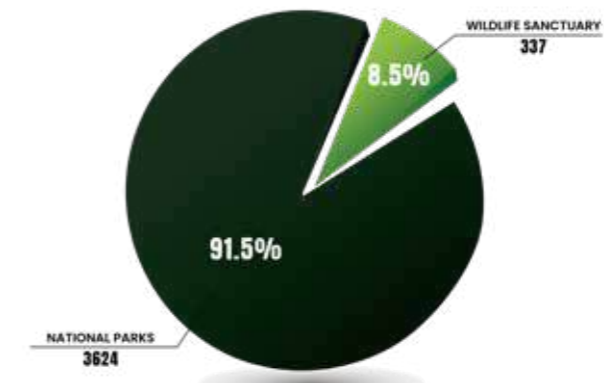
4.1.4 Elephant Population Estimated in Managed Forests of Assam

During the 2024 Synchronized Elephant Population Estimation, a total of **1,774 elephants** were recorded from these managed forest areas, demonstrating their significance in the broader conservation landscape.

Table 4.5: Details of Elephants Counted in Managed Forests of Assam

S. NO.	NAME OF DIVISION	NAME OF RF	ADULT					SUB-ADULT				JUVENILE				CALF	SOLITARY			TOTAL
			T	M	G	U/S	F	T	M	U/S	F	T	M	U/S	F		T	M	G	
1	Doomdooma Division	Burhidihing RF	0	13	0	0	49	0	10	0	0	0	10	0	0	29	0	0	0	111
2	Doomdooma Division	Kakajan RF	2	3	0	0	6	3	0	0	0	0	0	3	0	7	0	0	0	24
3	Doomdooma Division	Tokouwani RF	1	2	0	0	3	0	2	0	0	0	0	0	2	2	0	0	0	12
4	Doomdooma Division	Kukuramara RF	0	1	0	0	1	0	1	0	1	0	1	0	1	0	0	0	0	6
5	Doomdooma Division	Station RF (North Block)	0	2	0	1	2	0	1	0	0	0	0	0	0	2	0	0	0	8
6	Doomdooma Division	Hahkhati RF	0	1	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	4
7	Doomdooma Division	Mechaki RF	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8	Digboi Division	Upper Dehing RF (East Block)	5	5	1	35	15	7	2	15	6	7	3	6	1	19	0	4	0	131
9	Digboi Division	Upper Dehing RF (West Block)	6	6	0	2	8	1	0	8	0	1	0	5	0	7	0	1	0	45
10	Digboi Division	Digboi RF (East Block)	2	0	0	0	3	0	0	1	0	0	0	0	0	3	0	0	0	9
11	Digboi Division	Makumpani RF	0	1	0	0	2	0	0	0	0	0	0	2	0	1	0	0	0	6
12	Digboi Division	Kotha RF	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	4
13	Digboi Division	Tinkopani RF	0	0	1	11	4	0	0	0	0	0	0	0	0	2	0	0	0	18
14	Digboi Division	Tirap RF	0	0	0	16	7	0	0	0	0	0	0	0	0	7	0	0	0	30
15	Dibrugarh Division	Dehingmukh RF	0	0	0	5	23	0	0	20	0	0	0	12	0	13	0	3	1	77
16	Sibsagar Division	Abhoypur RF.	1	0	0	0	6	0	3	0	3	0	1	0	3	3	1	0	0	21
17	Jorhat Division	Dessoi RF	2	0	0	0	9	0	0	4	0	0	0	3	0	0	0	0	0	18
18	Golaghat Division	Deopahar PRF	0	1	0	0	7	0	0	5	0	0	1	7	0	5	0	0	0	26
19	Nagaon South Division	Doboka RF	0	4	0	3	1	0	0	1	2	0	0	0	0	4	0	0	0	15
20	Nagaon South Division	Hawaipur RF	1	1	1	0	26	0	3	5	12	0	0	5	0	16	0	0	0	70
21	Nagaon South Division	Kumrakata RF	1	2	0	0	9	3	0	0	0	0	0	3	0	8	0	0	0	26
22	Nagaon South Division	Kaki RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
23	Nagaon South Division	Lumding RF	2	10	0	1	22	0	1	6	3	0	3	15	0	15	0	0	0	78
24	Nagaon South Division	Lumding RF	0	5	0	2	2	0	1	0	6	0	2	4	2	4	0	0	0	28
25	Nagaon Division	Kafitoli RF	0	2	0	0	6	0	0	4	0	0	0	0	0	5	0	0	0	17
26	Nagaon Division	Kamakhya RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
27	Nagaon Division	South Dijoo RF	0	7	0	3	9	1	1	3	2	0	1	2	0	3	0	1	0	33
28	Nagaon Division	North Dijoo RF	1	2	0	2	3	0	0	7	0	0	0	2	0	3	2	2	0	24
29	Nagaon Division	Sonaikuchi RF	0	2	0	0	8	0	0	4	0	0	0	4	0	8	0	0	0	26
30	Nagaon Division	Kholahat RF	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
31	Sonitpur West Division	Balipara RF	1	3	0	0	2	0	0	0	0	0	1	0	0	1	0	1	0	9
32	Sonitpur West Division	Charduar RF	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
33	Sonitpur East Division	Naduar RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
34	Lakhimpur Division	Ranga RF	1	4	1	0	4	0	2	0	0	0	1	0	0	1	0	0	0	14
35	Lakhimpur Division	Dullung RF	0	10	0	0	10	0	7	0	3	0	2	0	1	3	0	0	0	36
36	Lakhimpur Division	Kakoi RF	0	5	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	7
37	Dhemaji Division	Poba R.F.	0	1	0	0	4	0	1	1	0	0	0	0	0	2	0	0	0	9
38	Kamrup East Division	Garbhanga RF	1	0	0	0	3	0	2	1	0	0	0	0	2	1	0	0	0	10
39	Kamrup East Division	Rani RF	11	0	0	0	27	8	0	0	0	3	0	5	2	7	0	0	0	63
40	Kamrup East Division	Jarasal Rf	0	2	0	0	9	0	0	0	1	0	0	0	0	9	0	0	0	21
41	Kamrup East Division	Maliata RF	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	4
42	Kamrup West Division	Pantan RF	0	3	0	1	5	0	4	0	2	0	0	0	0	2	0	0	0	17
43	Kamrup West Division	Barduar RF	0	2	0	0	6	0	0	0	4	0	0	0	0	4	0	0	0	16
44	Kamrup West Division	Luki RF	1	2	1	0	2	1	1	0	1	0	2	0	1	2	0	0	0	14
45	Kamrup West Division	Jarikhuri RF	3	3	1	0	5	1	3	0	2	2	3	0	2	7	0	0	0	32
46	Kamrup East Division	Kawasing RF	0	1	0	0	3	0	1	1	0	0	0	0	0	3	0	0	0	9
47	Goalpara Division	Deosila RF	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	6
48	Goalpara Division	Borjhar RF	0	3	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	6
49	Goalpara Division	Pancharatna RF	0	4	0	0	5	0	0	3	0	0	1	0	0	2	0	0	0	15
50	Goalpara Division	Dhamar RF	0	5	0	0	2	0	3	0	0	0	3	0	0	2	0	0	0	15
51	Hailakandi Division	Kathakal RF	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
52	Kachugaon Division	Ripu RF	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
53	Dhansiri Division	Khalingduar RF	0	9	0	5	26	1	4	2	4	0	2	5	11	10	0	1	0	80
54	Dhansiri Division	Rowta RF	1	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	5
55	Haltugaon & Chirang Division	Chirang RF	0	16	0	20	34	0	3	9	4	0	1	10	1	16	1	3	0	118
56	Karbi Anglong East Division	Kalioni RF	3	0	0	0	14	0	1	0	4	0	3	0	2	3	0	0	0	30
57	Karbi Anglong East Division	Nambor RF (West)	0	3	0	0	8	0	1	0	0	0	0	0	0	3	0	0	0	15
58	Karbi Anglong East Division	Sildharampur RF	0	2	0	0	9	0	0	0	0	0	1	0	2	0	0	0	0	15
59	Karbi Anglong East Division	Kalapahar PRF	0	5	0	2	3	0	1	1	0	0	1	0	2	0	0	0	0	15
60	Karbi Anglong East Division	Langlokso PRF	2	3	0	0	18	1	2	2	6	0	2	1	5	7	1	0	0	50
61	Karbi Anglong East Division	Dolamara PRF	1	2	0	1	6	0	0	0	2	0	0	2	1	2	0	0	0	17
62	Karbi Anglong East Division	Borjuri PRF	0	0	0	0	4	0	1	0	3	0	0	0	1	1	0	0	0	10
63	Karbi Anglong West Division	Dhansiri R.F.	1	0	0	0	10	0	2	1	2	0	3	1	2	5	0	0	0	27
64	Karbi Anglong West Division	Doldoli R.F.	0	0	0	0	4	0	2	1	0	0	0	1	2	1	0	0	0	11

S. NO.	NAME OF DIVISION	NAME OF RF	ADULT					SUB-ADULT				JUVENILE				CALF	SOLITARY			TOTAL
			T	M	G	U/S	F	T	M	U/S	F	T	M	U/S	F		T	M	G	
65	Karbi Anglong West Division	Tamulbari DCRF	0	0	0	1	2	0	0	0	1	0	0	1	1	0	0	0	0	6
66	Karbi Anglong West Division	Hapjan P.R.F.	0	1	0	1	4	0	0	1	0	0	0	0	2	1	0	0	0	10
67	Hamren Division	Amreng RF	3	2	0	0	14	2	1	1	3	1	0	0	3	9	0	0	0	39
68	Hamren Division	Amreng 1st Addition DCRF	1	3	0	0	9	2	0	1	6	1	3	1	3	3	0	0	0	33
69	Hamren Division	Amsolong PRF	1	2	0	1	5	0	2	1	1	0	1	1	0	1	0	0	0	16
70	Dima Hasao West	Krunming RF	0	3	0	0	4	0	3	0	3	0	0	3	0	3	0	2	0	21
71	Eastern Assam Wildlife Division	Bagser RF	2	3	0	0	7	0	0	6	0	0	0	4	0	6	0	0	0	28
72	Eastern Assam Wildlife Division	Kukurakata RF	2	4	0	0	6	0	2	1	3	0	0	2	0	4	0	1	0	25
73	Eastern Assam Wildlife Division	Panbari RF	0	3	0	0	5	0	1	0	0	0	2	0	1	5	0	2	0	19
TOTAL			60	186	8	117	521	31	77	118	90	15	53	113	54	297	5	28	1	1774

4.1.5 Elephant Population Estimated in Revenue Areas (Outside Forest Areas) of Assam

Revenue Areas (Outside Forest Areas) include human-dominated landscapes such as agricultural fields, tea estates, community-owned lands, and village outskirts where elephants often stray in search of food and water. These areas, although not traditionally considered elephant habitats, are becoming increasingly crucial in understanding human-elephant interactions and mitigating conflict.

During the 2024 Synchronized Elephant Population Estimation, a total of **93 elephants** were recorded from various revenue lands across Assam, reflecting the growing challenge of managing elephants outside forested regions.

Table 4.6: Details of Elephants Counted in the Revenue Areas of Assam

S. NO.	FOREST DIVISION	REVENUE AREA	ADULT					SUB-ADULT				JUVENILE				CALF	SOLITARY			TOTAL
			T	M	G	U/S	F	T	M	U/S	F	T	M	U/S	F		T	M	G	
1	Doomdooma Division	Kundil Chapari	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Majuli Division	Garamur Range	0	1	1	0	0	0	0	0	1	0	0	0	2	1	0	0	0	6
3	Golaghat Division	Numalighar and Ronbong	0	4	0	0	13	2	3	10	0	2	1	5	2	12	0	1	0	55
4	Dhemaji Division	Amguri	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	5
5	Kamrup East Division	Army Contontment, Narengi	2	2	0	0	4	0	0	0	0	0	0	0	0	3	2	0	0	13
6	Dhansiri Division	Rajagarh and Bhutiachang	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
7	Karbi Anglong East	Revenue 46 Blocks	0	0	0	4	0	0	0	2	0	0	1	2	0	1	0	0	0	10
TOTAL			2	12	2	7	17	2	3	12	1	2	2	7	4	17	2	1	0	93

Graph 4.8: Distribution of Elephants in the Revenue Areas of Assam

Kundil Chapari — 1
Rajagarh and Bhutiachang — 3
Amguri — 5
Garamur Range — 6
Revenue 46 Blocks — 10
Army Contontment, Narengi — 13
Numalighar and Ronbong — 55
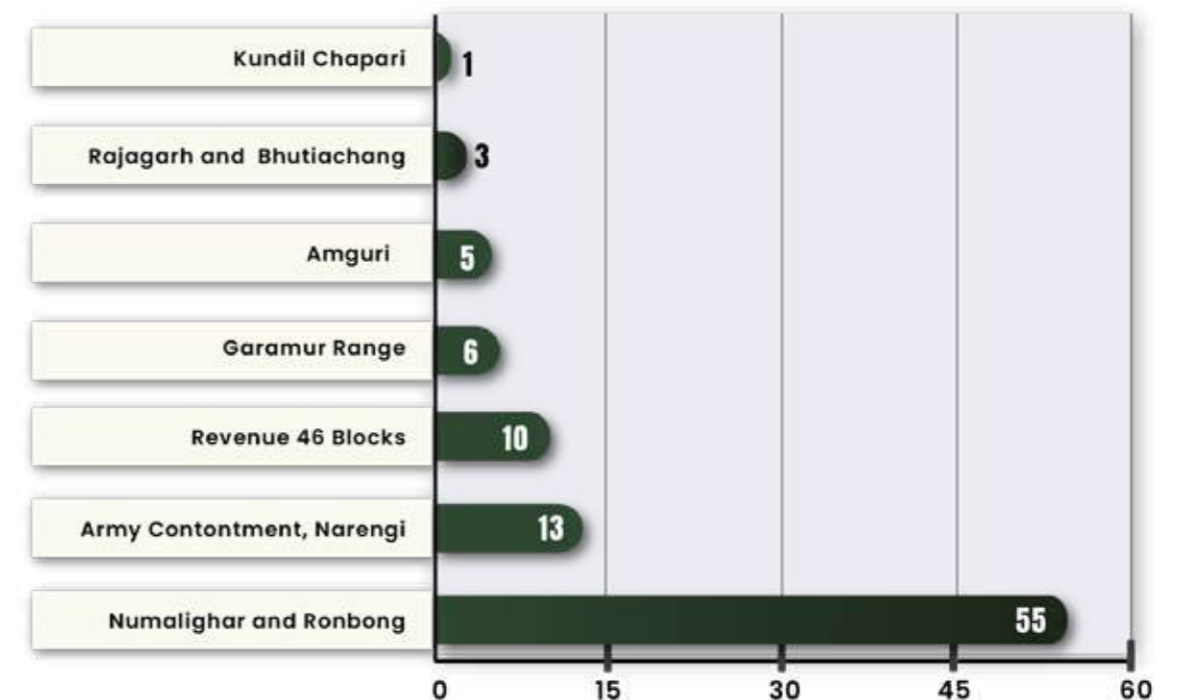
4.2. Population in Elephant Reserves

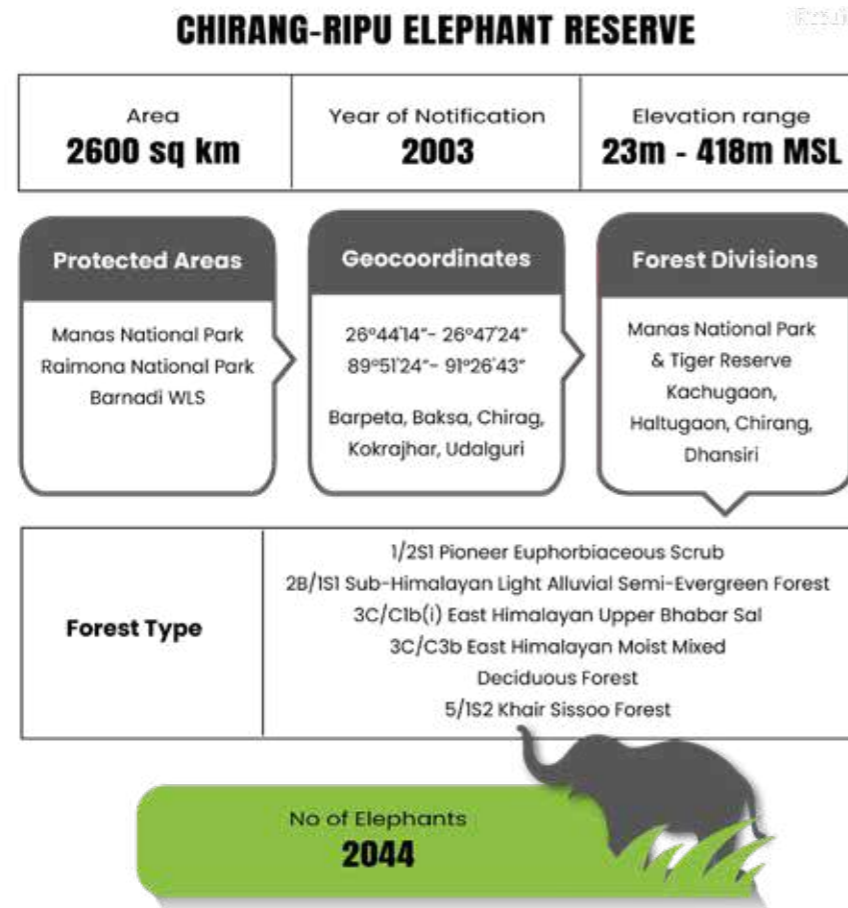## I.   CHIRANG-RIPU ELEPHANT RESERVE

Chirang-Ripu Elephant Reserve is a significant transboundary habitat spanning **2,600 sq. km** in western part of Assam. Sharing its western boundary with Buxa Tiger Reserve in West Bengal and its northern boundary with Phipsoo Wildlife Sanctuary in Bhutan, it serves as a crucial ecological corridor for elephant movement between India and Bhutan. The reserve's varied topography, which includes foothill forests, riverine landscapes, and mixed deciduous forests, supports rich biodiversity and provides critical habitats for elephants and other species.

Characterized by diverse forest types such as pioneer euphorbiaceous scrub, Sub-Himalayan light alluvial semi-evergreen forest, East Himalayan upper Bhabar Sal, East Himalayan moist mixed deciduous forest, and Khair Sissoo Forest, the reserve's vegetation structure caters to the foraging and shelter needs of elephants throughout the year, particularly during seasonal migrations.

Chirang-Ripu Elephant Reserve is part of the broader North Brahmaputra Elephant Range, delineated under Project Elephant (2007), which encompasses three interconnected elephant reserves: Kameng, Sonitpur, and Chirang-Ripu. Together, these reserves span the foothills of the Eastern Himalayas, creating a seamless landscape that facilitates the safe movement of elephants from Bhutan to the Duar belt through the Himalayan foothills and Tarai tract. This interconnectedness underscores the strategic importance of Chirang-Ripu for long-term elephant conservation and habitat connectivity across the region.

Fig 4.1: Chirang-Ripu Elephant Reserve
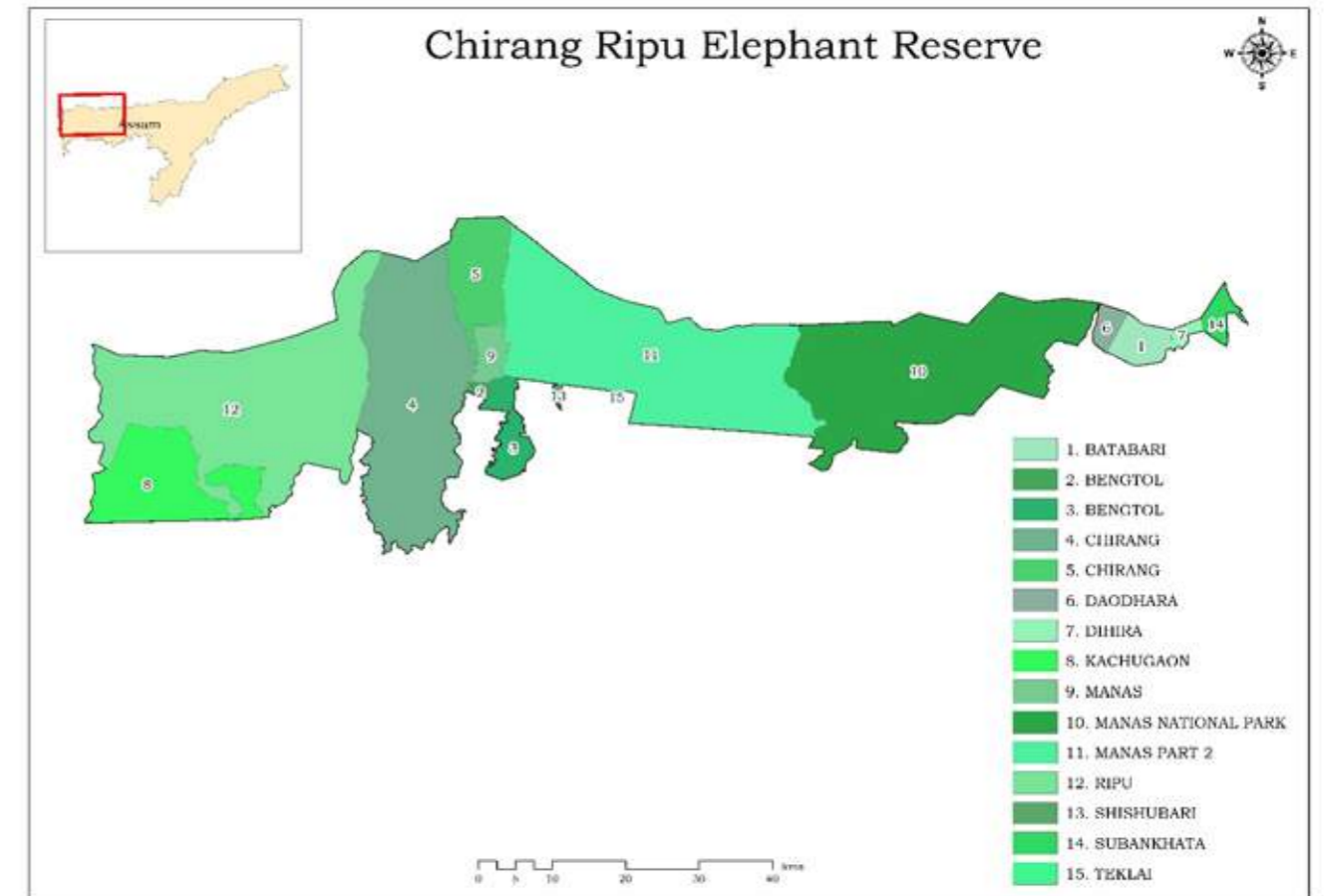
Map 4.4: Chirang Ripu Elephant Reserve
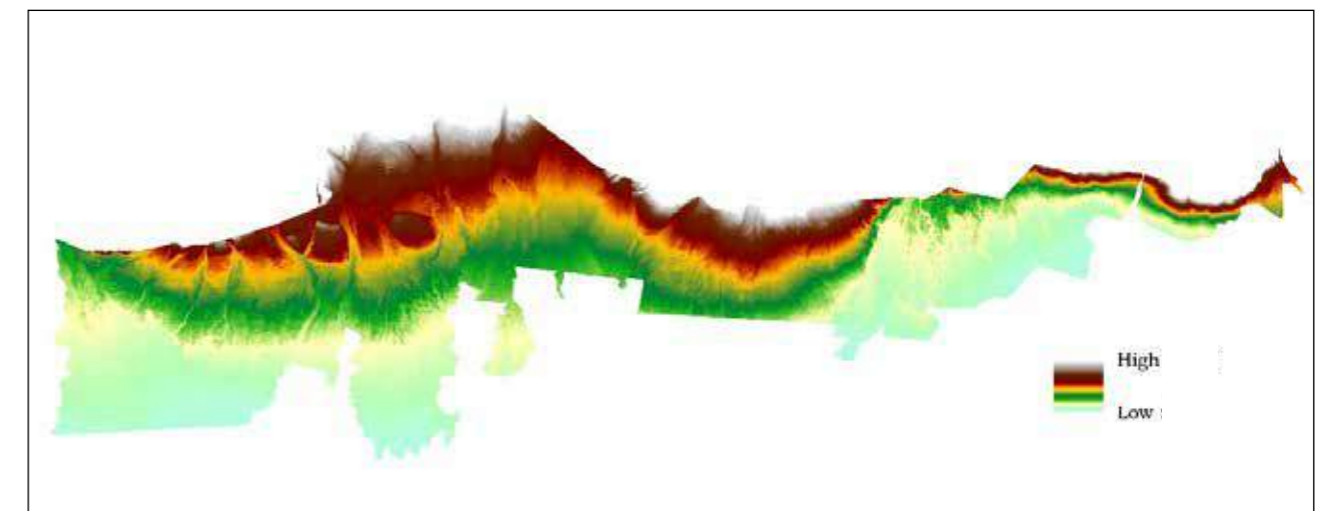
Map 4.5: Elevation Map of Chirang Ripu Elephant Reserve

S. NO.	CONSTITUTING UNIITS (RF/ PRFS)	ADULT					SUB-ADULT				JUVENILE				CALF	SOLITARY			TOTAL
		T	M	G	U/S	F	T	M	U/S	F	T	M	U/S	F		T	M	G	
1	Subankhata RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Dihira RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Batabari RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Daodhara RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Manas NP (Kokilabari RF, Manas RF Part 1)	79	129	10	87	587	47	46	203	86	16	20	131	21	286	8	13	4	1773
6	Manas RF Part 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Sishubari RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Teklai RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Bengtol RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Chirang RF	0	16	0	20	34	0	3	9	4	0	1	10	1	16	1	3	0	118
11	Ripu RF	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
12	Kachugaon RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Barnadi WLS	1	2	0	3	1	0	1	0	0	0	0	1	0	0	0	0	0	9
14	Khalingduwar RF	0	9	0	5	26	1	4	2	4	0	2	5	11	10	0	1	0	80
15	Nioli PRF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Daranga RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Bhairabkhunda RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Mora-Pagladia RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Raimona NP (Excluding Ripu RF)	5	6	0	10	14	0	2	3	3	0	0	8	3	8	0	0	0	62
	TOTAL	85	163	10	126	662	48	56	217	97	16	23	155	36	320	9	17	4	2044

Graph 4.9: Chirang-Ripu Elephant Reserve Elephant Population Trend
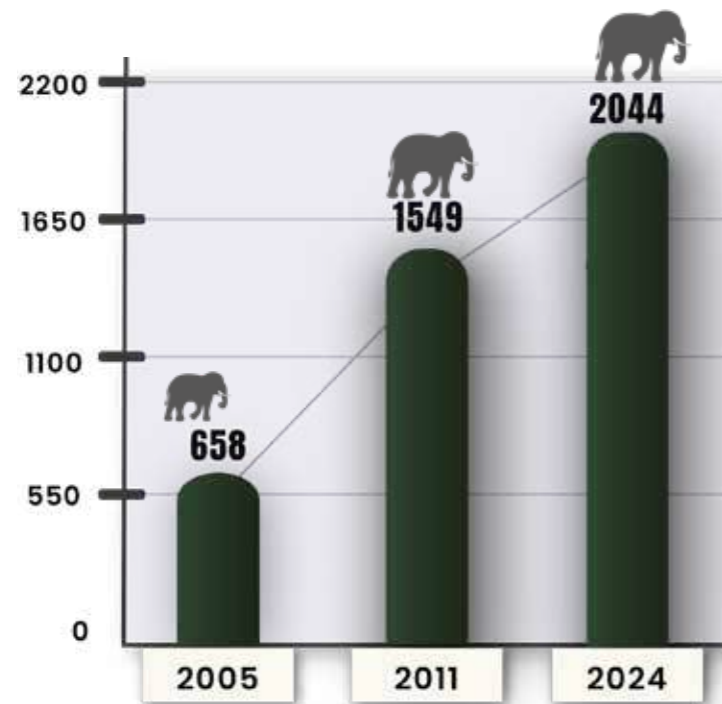
II. SONITPUR ELEPHANT RESERVE

Sonitpur Elephant Reserve, covering **1,420 sq. km,** is located in northern Assam along the foothills of the Eastern Himalayas, serving as a critical conservation area for the Asian elephant. It forms an essential ecological link between the forested landscapes of Assam and the Kameng Elephant Reserve in Arunachal Pradesh, ensuring habitat connectivity and facilitating the safe movement of elephants across state borders.

The reserve encompasses key protected areas such as Nameri National Park, Sonai Rupai Wildlife Sanctuary, and the proposed Behali Wildlife Sanctuary, making it a strategic corridor for maintaining the genetic flow and migratory routes of elephant populations. This region was historically known for its rich habitat diversity, with over **25 major forest types** documented across its contiguous forest tracts, stretching from Bhairabkunda Reserve Forest to Gophur Reserve Forest. The unique configuration of this landscape has led to its identification as the Bhairabkunda-Gophur Elephant Range, underscoring its significance for long-term elephant conservation in the region.
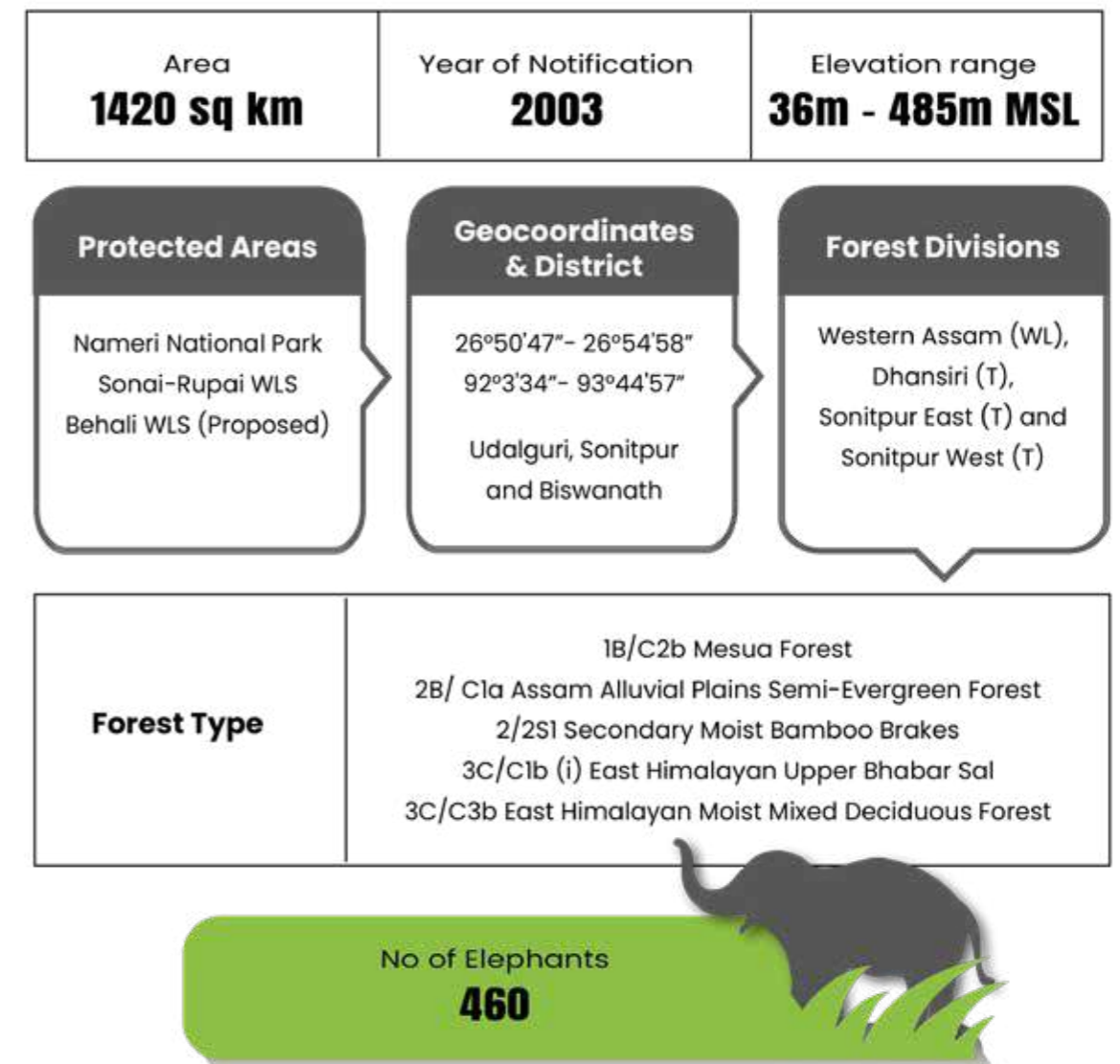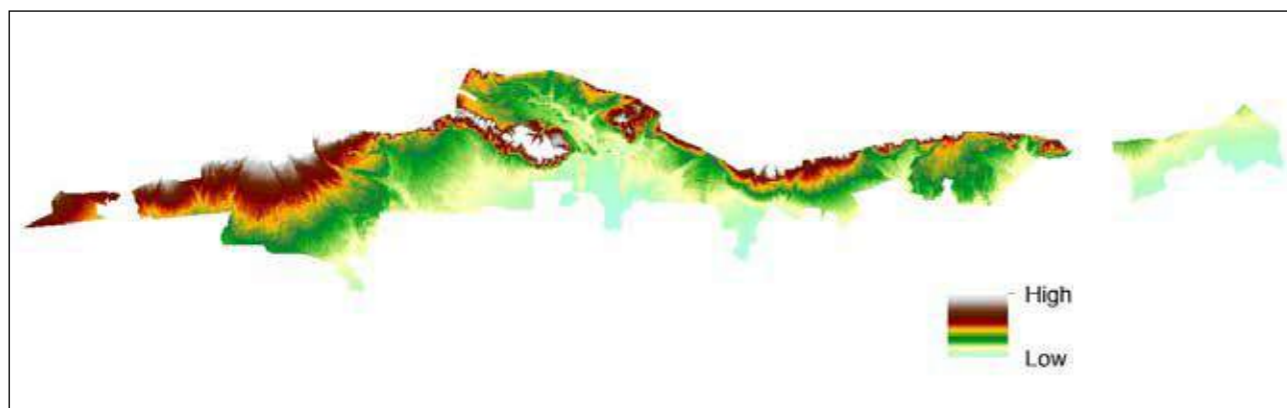

Fig 4.2: Sonitpur Elephant Reserve
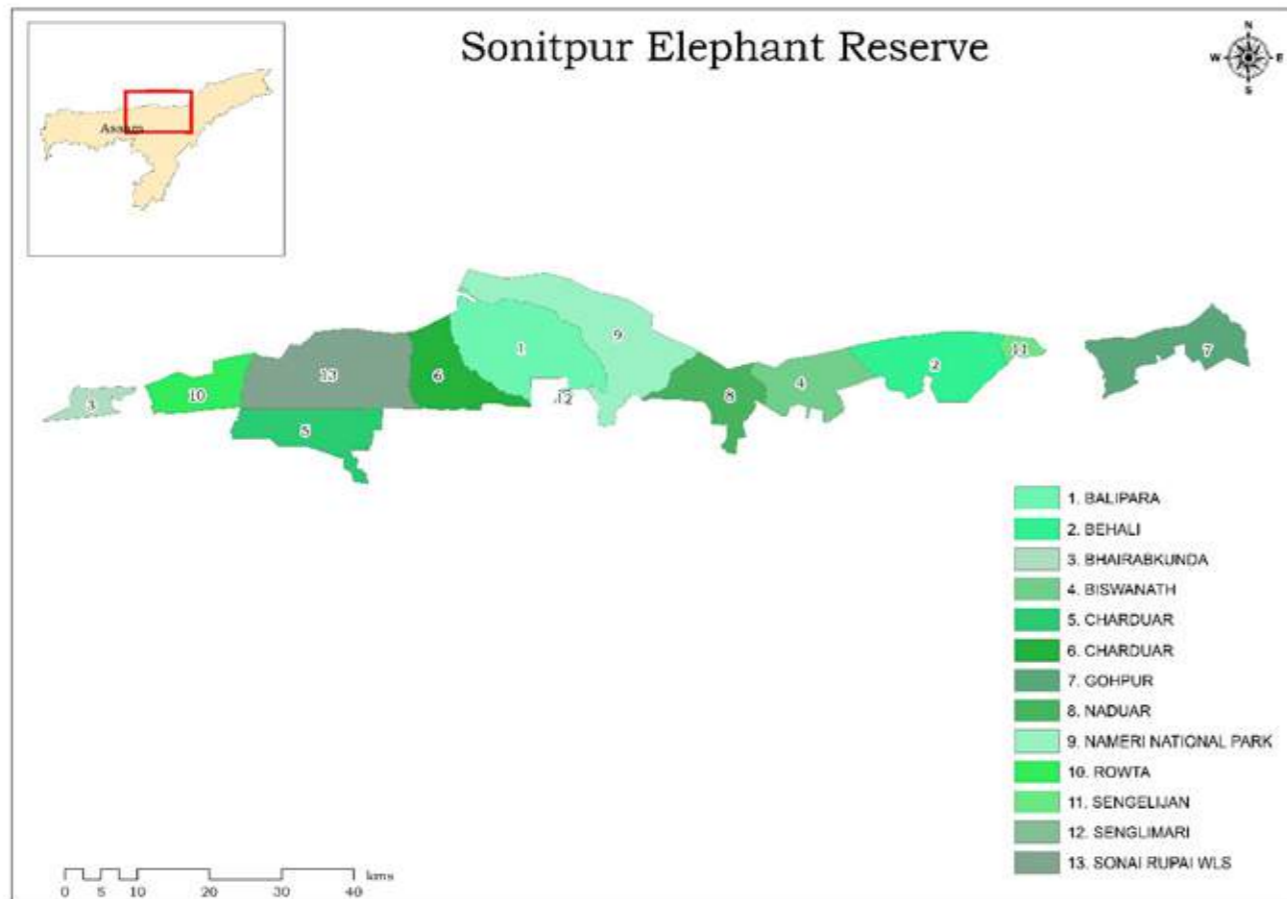
Map 4.6: Sonitpur Elephant Reserve

Map 4.7: Elevation Map of Sonitpur Elephant Reserve

Table 4.7: Sonitpur Elephant Reserve Elephant Estimation 2024

S. NO.	CONSTITUTING UNITS (PA/RF)	ADULT					SUB-ADULT				JUVENILE				CALF	SOLITARY			TOTAL
		T	M	G	U/S	F	T	M	U/S	F	T	M	U/S	F		T	M	G	
1	Bhairabkunda RF (Part)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Rowta RF	1	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	5
3	Sonai Rupai WLS	4	12	0	28	31	0	4	12	3	1	1	22	0	14	2	6	0	140
4	Charduar RF	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5	Balipara RF	1	3	0	0	2	0	0	0	0	0	1	0	0	1	0	1	0	9
6	Sengelimari RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Nameri National Park	7	12	1	9	84	2	12	12	26	0	8	28	7	37	3	12	1	261
8	Naduar RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
9	Biswanath RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Behali WLS	0	4	1	4	12	0	3	2	6	0	0	3	0	4	2	1	0	42
11	Singlijan RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Gophur RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GRAND TOTAL	14	31	2	41	129	2	19	26	35	1	10	55	7	58	7	22	1	460

Graph 4.9: Sonitpur Elephant Reserve Elephan Population Trend
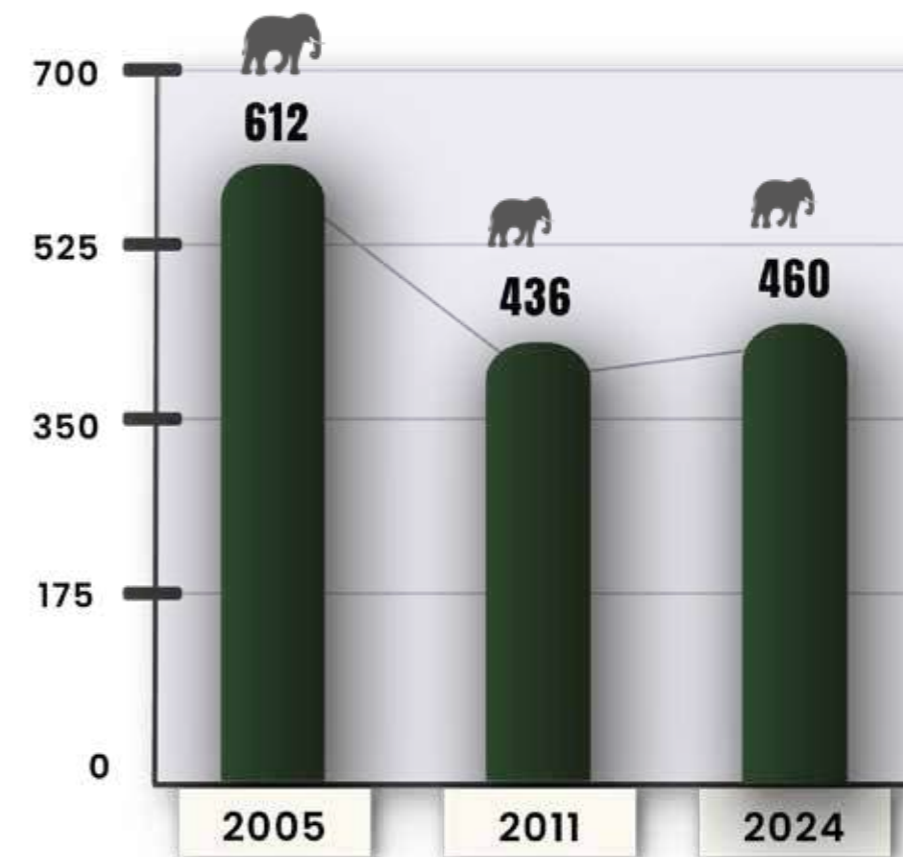
III. DEHING-PATKAI ELEPHANT RESERVE

Dehing-Patkai Elephant Reserve, covering an area of **937 sq. km**, is situated in the easternmost part of Assam, nestled along the foothills of the Patkai range. The reserve shares its eastern boundary with the South Arunachal Elephant Reserve of Arunachal Pradesh and its southern boundary with the Singphan Elephant Reserve of Nagaland, forming a vital transboundary corridor that facilitates elephant movement between Assam, Arunachal Pradesh, and Nagaland. This strategic location makes Dehing-Patkai a crucial link in the regional elephant landscape.

The reserve encompasses a network of Reserve Forests and Protected Areas spread across Dibrugarh, Digboi, Dum Duma, and Sivasagar Forest Divisions. The Dehing-Patkai National Park—often referred to as the "Amazon of the East" due to its dense rainforests and rich biodiversity—serves as the core area of this Elephant Reserve, providing a sanctuary for a wide array of wildlife species.

Dehing-Patkai's role extends beyond being a key elephant habitat; it serves as a critical corridor, connecting Assam's elephant population to larger habitats in neighbouring states. This connectivity ensures seasonal migrations and genetic exchange among elephant populations, which are vital for sustaining a healthy and genetically diverse elephant population in the region.

Fig 4.3: Dehing-Patkai Elephant Reserve

Map 4.8: Dihing Patkai Elephant Reserve

Map 4.9: Elevation Map of Dihing Patkai Elephant Reserve

Table 4.7: Dihing Patkai Elephant Reserve Elephant Estimation2024

S. NO.	CONSTITUTING UNIITS (RF/PRFS)	ADULT					SUB-ADULT				JUVENILE				CALF	SOLITARY			TOTAL
		T	M	G	U/S	F	T	M	U/S	F	T	M	U/S	F		T	M	G	
1	DPNP (Joypur RF)	0	0	0	0	10	0	1	1	1	1	0	5	0	6	0	1	1	27
2	DPNP (Digboi Division)	5	12	0	1	27	1	5	1	6	4	6	7	7	21	0	2	0	105
3	Upper Dihing RF EB	5	5	1	35	15	7	2	15	6	7	3	6	1	19	0	4	0	131
4	Upper Dihing RF WB	6	6	0	2	8	1	0	8	0	1	0	5	0	7	0	1	0	45
5	Lekhapani RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	1st addition Dirok RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Digboi RF EB	2	0	0	0	3	0	0	1	0	0	0	0	0	3	0	0	0	9
8	Digboi RF WB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Kakojan RF	2	3	0	0	6	3	0	0	0	0	0	3	0	7	0	0	0	24
10	Bogapani RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Saleki RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Tinkopani RF	0	0	1	11	4	0	0	0	0	0	0	0	0	2	0	0	0	18
13	Tipong RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Tirap RF	0	0	0	16	7	0	0	0	0	0	0	0	0	7	0	0	0	30
15	Namphai RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Makumpani RF	0	1	0	0	2	0	0	0	0	0	0	2	0	1	0	0	0	6
17	Paharpur RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Kotha RF	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	4
19	Naloni RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Philobari RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Tokouoni RF	1	2	0	0	3	0	2	0	0	0	0	2	0	2	0	0	0	12
22	Torani RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Duarmara R.F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Buri dihing RF	0	13	0	0	49	0	10	0	0	0	10	0	0	29	0	0	0	111
25	Dilli RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Abhoypur RF	1	0	0	0	6	0	3	0	3	0	1	0	3	3	1	0	0	21
	TOTAL	22	42	2	68	140	12	23	26	16	13	20	28	13	108	1	8	1	543

Graph 4.10: Dihing Patkai Elephant Reserve Elephant Population Trend
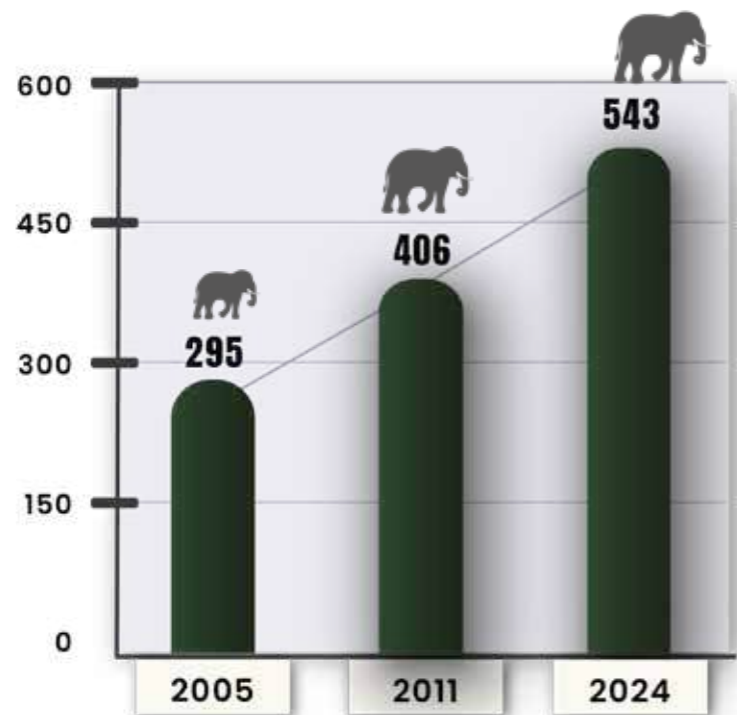
IV. KAZIRANGA-KARBI ANGLONG ELEPHANT RESERVE

Kaziranga-Karbi Anglong Elephant Reserve, spanning 3,270 sq. km, is the largest elephant reserve in Assam. This expansive reserve includes the world-renowned Kaziranga National Park, a UNESCO World Heritage Site, along with extensive forested areas of the Karbi Anglong district, creating a vast and contiguous landscape for elephant movement and other wildlife. The reserve supports a rich array of biodiversity, including the endangered Asian elephant and the Greater One-Horned Rhinoceros, and forms a critical ecological corridor connecting forested regions in Assam with those in Nagaland.

The reserve's terrain ranges from the fertile and dynamic floodplains of Kaziranga to the dense, hilly forests of Karbi Anglong, providing diverse habitats that cater to the varying needs of elephants and other species. This mosaic of landscapes makes Kaziranga-Karbi Anglong a key area for long-term elephant conservation and biodiversity protection. Additionally, its southern boundary is contiguous with the Dhansiri-Lungding Elephant Reserve, which further enhances landscape connectivity across the northeastern region of India.
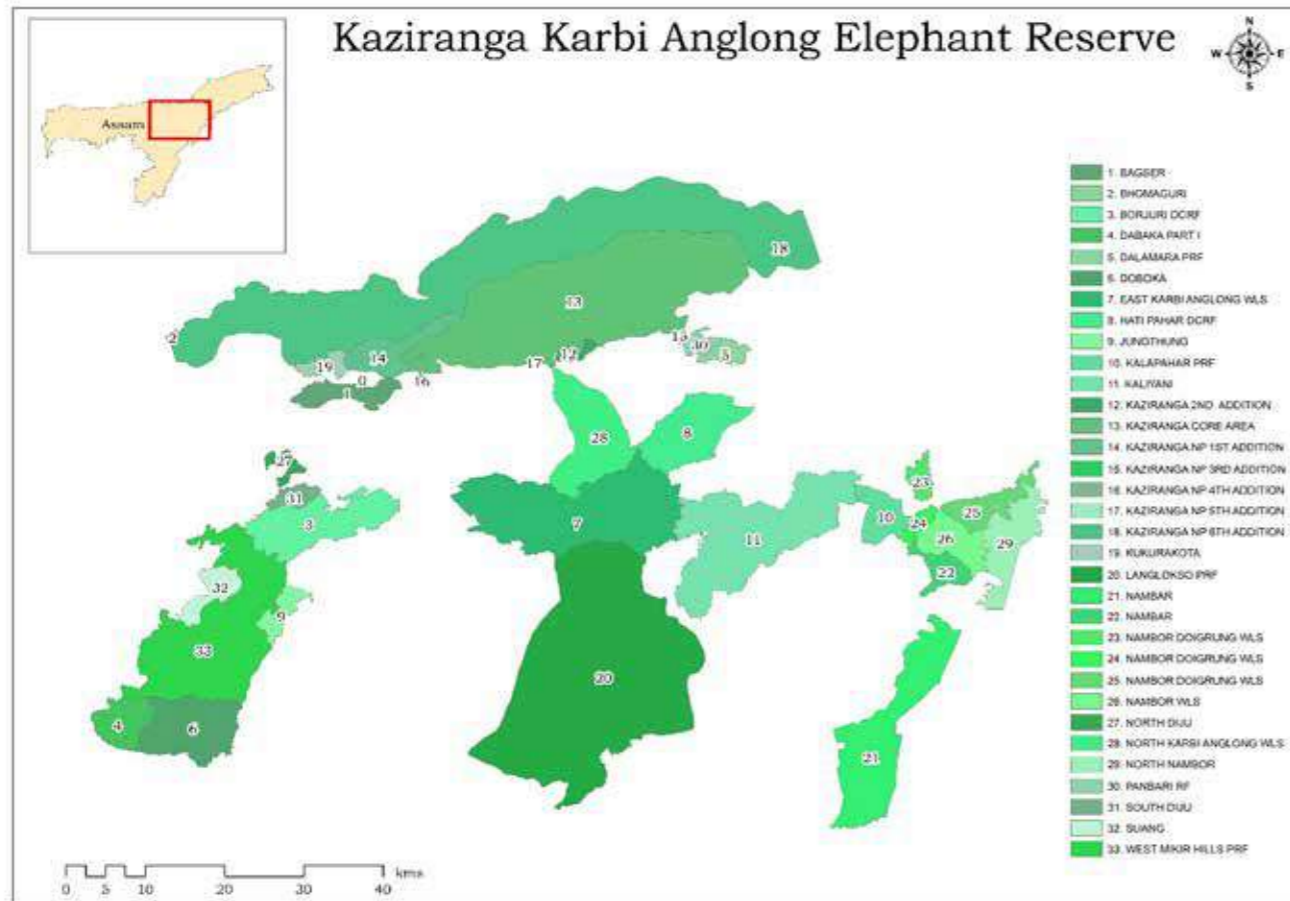
Kaziranga-Karbi Anglong Elephant Reserve plays a strategic role in maintaining ecological balance, not only within Assam but also across the broader northeastern landscape, underscoring its importance as a stronghold for wildlife conservation and landscape-level management.

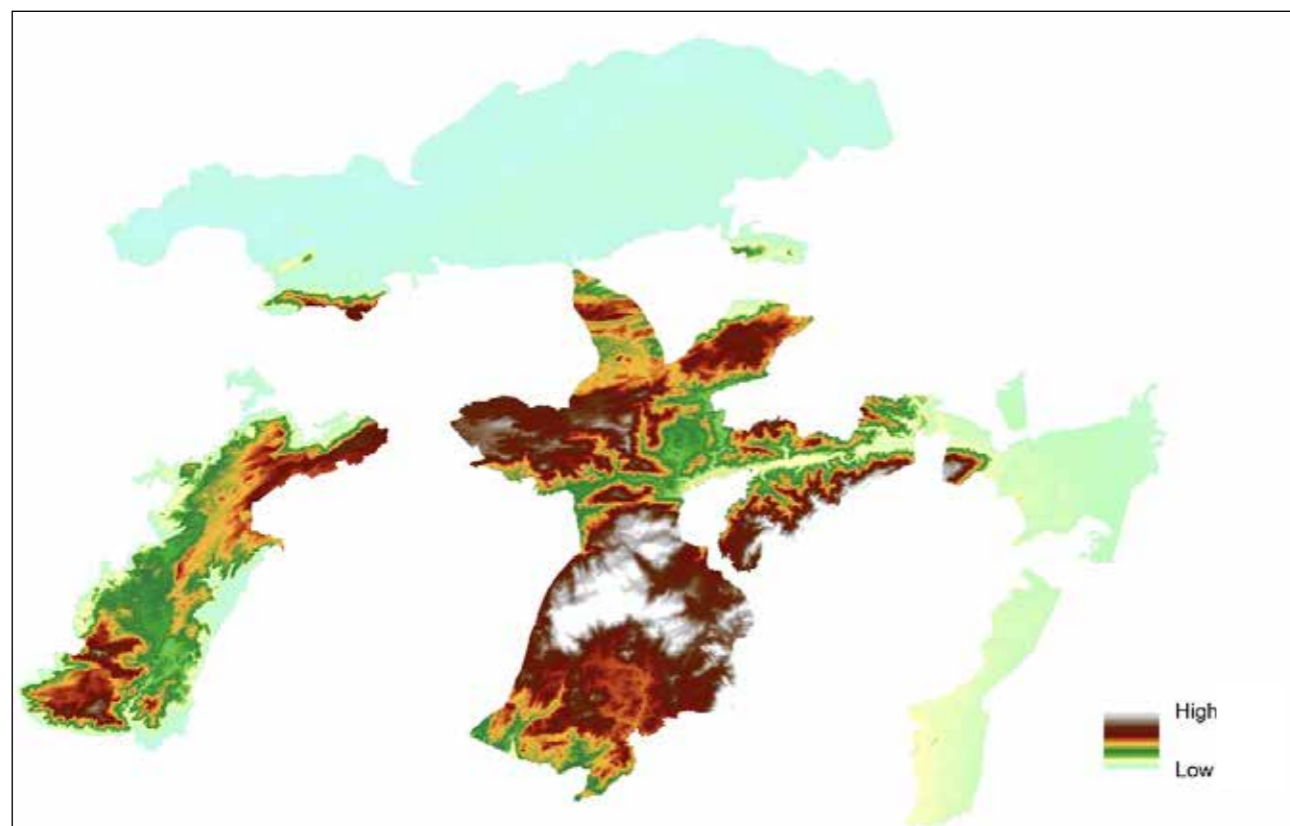Fig 4.4: Kaziranga-Karbi Anglong Elephant Reserve

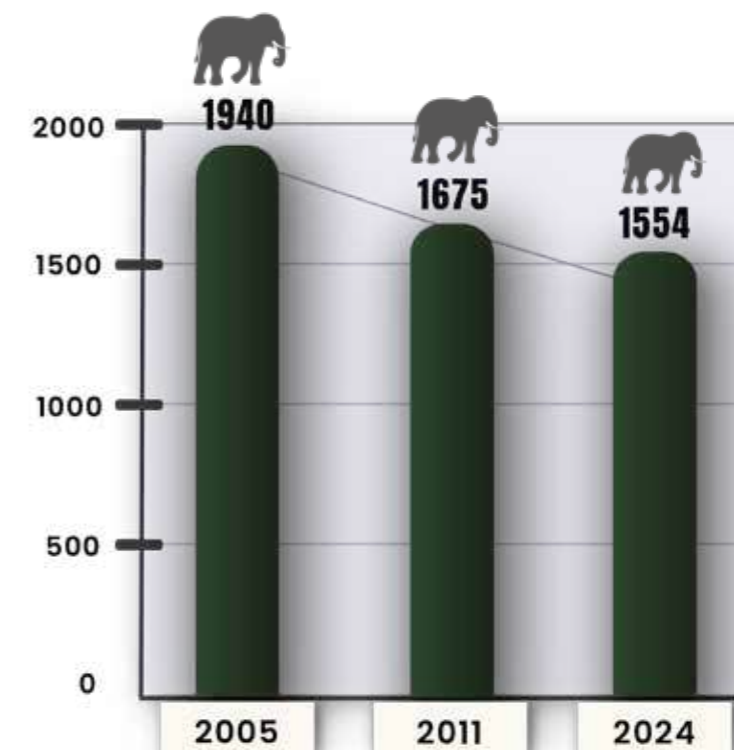Map 4.10: Kaziranga-Karbi Anglongi Elephant Reserve

Map 4.11: Elevation Map of Kaziranga-Karbi Anglong Elephant Reserve

Table 4.8: Kaziranga-Karbi Anglong Elephant Reserve Elephant Estimation2024

S. NO.	CONSTITUTING UNIITS (RF/PRFS)	ADULT					SUB-ADULT				JUVENILE				CALF	SOLITARY			TOTAL
		T	M	G	U/S	F	T	M	U/S	F	T	M	U/S	F		T	M	G	
1	Bhumuraguri RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Kaziranga NP & 1st to 6th Additions	50	32	3	1	507	11	13	13	103	11	21	17	50	285	40	23	3	1183
3	Panbari RF	0	3	0	0	5	0	1	0	0	0	2	0	1	5	0	2	0	19
4	Dolamara PRF	1	2	0	1	6	0	0	0	2	0	0	2	1	2	0	0	0	17
5	North Karbi Anglong WLS (Proposed)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	East Karbi Anglong WLS	2	5	0	2	20	0	0	0	5	0	2	1	4	9	0	0	0	50
7	Kaliyoni RF	3	0	0	0	14	0	1	0	4	0	3	0	2	3	0	0	0	30
8	Kalapahar PRF	0	5	0	2	3	0	1	1	0	0	1	0	2	0	0	0	0	15
9	Nambor Doigurung WLS	1	5	0	0	5	0	0	2	0	0	0	0	2	4	0	1	0	20
10	Nambor (North Block) RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Nambor WLS	0	0	0	1	10	0	2	0	4	0	1	0	2	0	0	0	0	20
12	Longlokso PRF	2	3	0	0	18	1	2	2	6	0	2	1	5	7	1	0	0	50
13	Barjuri PRF	0	0	0	0	4	0	1	0	3	0	0	0	1	1	0	0	0	10
14	Jungthung RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	West Mikir Hills PRF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Doboka RF	0	4	0	3	1	0	0	1	2	0	0	0	0	4	0	0	0	15
17	Diju Valley South RF	0	7	0	3	9	1	1	3	2	0	1	2	0	3	0	1	0	33
18	Bagser RF	2	3	0	0	7	0	0	6	0	0	0	4	0	6	0	0	0	28
19	Kukurakata RF	2	4	0	0	6	0	2	1	3	0	0	2	0	4	0	1	0	25
20	Nambor (West Block) RF	0	3	0	0	8	0	1	0	0	0	0	0	0	3	0	0	0	15
21	Diju Valley North RF	1	2	0	2	3	0	0	7	0	0	0	2	0	3	2	2	0	24
22	Haithapahar DCRF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	64	78	3	15	626	13	25	36	134	11	33	31	70	339	43	30	3	1554

Graph 4.11: Kaziranga-Karbi Anglong Elephant Reserve Elephant Population Trend

V. DHANSIRI-LUNGDING ELEPHANT RESERVE

Dhansiri-Lungding Elephant Reserve (DLER), covering an area of 2,740 sq. km, is the second-largest Elephant Reserve in Assam. Situated along the border regions of Assam and Nagaland, the reserve serves as a crucial transboundary habitat for elephants and other wildlife. DLER is contiguous with the Kaziranga-Karbi Anglong Elephant Reserve to the north and the Intanki Elephant Reserve in Nagaland to the east, forming an essential ecological link between the two states. The Dhansiri River, a major water source flowing through the reserve, sustains a wide variety of wildlife within its dense and diverse forest landscapes.

The reserve encompasses a network of Reserve Forests and Protected Areas spread across Karbi Anglong East, Karbi Anglong West, Nagaon South, and North Cachar Hills Forest Divisions. Its varied topography and diverse habitat types—including tropical semi-evergreen forests, moist deciduous forests, and riverine habitats—make it a critical stronghold for elephant populations. DLER acts as a major corridor that facilitates the seasonal movement of elephants between the Karbi Anglong hills and the adjoining forests of Nagaland, ensuring genetic flow and maintaining landscape-level connectivity.

Fig 4.5: Dhansiri-Lungding Elephant Reserve


Map 4.12: Dhansiri-Lungding Elephant Reserve

Map 4.13: Dhansiri-Lungding Elephant Reserve

Table 4.9: Dhansiri-Lungding Elephant Reserve Elephant Estimation 2024

S. NO.	CONSTITUTING UNIITS (RF/PRFS)	ADULT					SUB-ADULT				JUVENILE				CALF	SOLITARY			TOTAL
		T	M	G	U/S	F	T	M	U/S	F	T	M	U/S	F		T	M	G	
1	Lumding RF	2	15	0	3	24	0	2	6	9	0	5	19	2	19	0	0	0	106
2	Longnit DCRF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Patradisa OCRF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Khonbamon DCRF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Jamuna DCRF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Tikok PRF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Dhansiri RF	1	0	0	0	10	0	2	1	2	0	3	1	2	5	0	0	0	27
8	Daladali RF	0	0	0	0	4	0	2	1	0	0	0	1	2	1	0	0	0	11
9	Kaki RF (Part of Marat Longri Wildlife Sanctuary)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
10	Marat Longri Wildlife Sanctuary	0	1	0	0	4	0	2	1	2	0	0	2	2	1	0	0	0	15
11	Matipung District Council Reserve Forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Tamulbari District Council Reserve Forest	0	0	0	1	2	0	0	0	1	0	0	1	1	0	0	0	0	6
13	Borlangpher District Council Reserve Forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Langsoliet District Council Reserve Forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	LangtingMupa RF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Lahorijan PRF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Hapjan Proposed Reserve Forest	0	1	0	1	4	0	0	1	0	0	0	0	2	1	0	0	0	10
	TOTAL	3	17	0	5	48	0	8	10	14	0	8	24	11	27	0	1	0	176

Graph 4.12: Dhansiri-Lungding Elephant Reserve Elephant Population Trend

Chapter
05 ANALYSIS
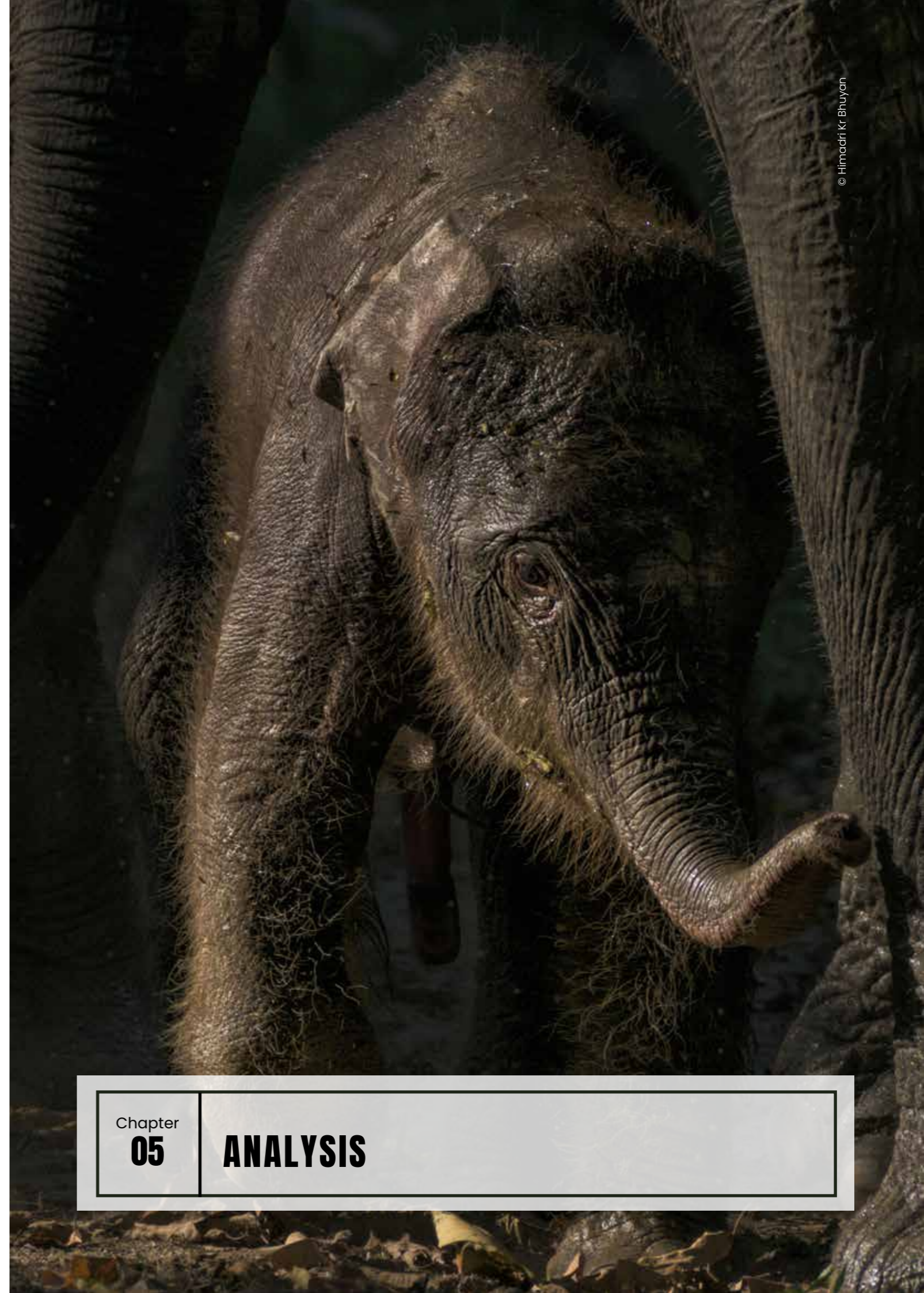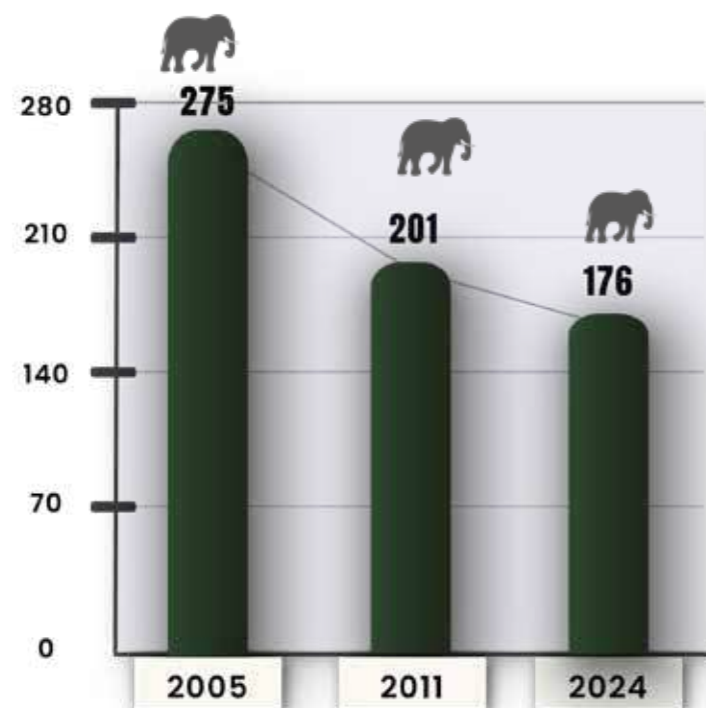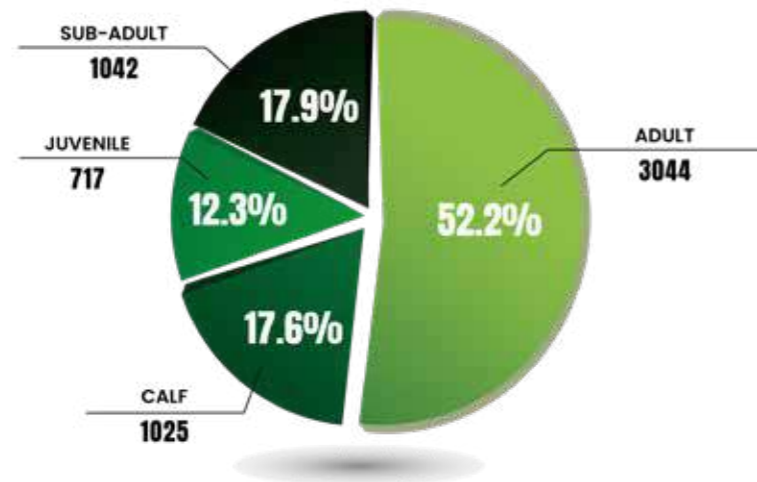
5.1. Population Dynamics Analysis

5.1.1 AGE-CLASS COMPOSITION

The population of elephants in Assam is categorized into four main age classes: Adult, Sub-adult, Juvenile, and Calf. The composition is as follows:

Graph 5.1: Age classification of Elephants in Assam

The population structure of elephants in Assam reveals a well-balanced age-class distribution, essential for long-term viability and stability. The data show:

1. **Adults (52.2%)**: The dominance of adults in the population signifies a healthy, mature age structure. Such a skew towards adults is characteristic of stable or slowly growing populations. Previous studies have suggested that an adult age class comprising more than 50% indicates the presence of a robust breeding pool and low mortality rates among mature individuals (Sukumar, 2003).

2. **Sub-adults (17.9%)**: This age class, which includes elephants in the transitional phase between juvenile and adult stages, suggests adequate recruitment levels. A sub-adult proportion of 15-20% is typically considered indicative of a healthy age structure, ensuring a steady influx into the adult category in future years.

3. **Juveniles (12.3%):** The juvenile component is slightly lower than what is observed in growing populations, where juveniles should typically constitute 15-20% of the total population. Nevertheless, it still indicates successful reproduction and survival rates, albeit with potential concerns over calf survival.

4. **Calves (17.6%):** The high proportion of calves reflects ongoing successful breeding and good fecundity rates. Generally, calf proportions above 15% indicate a population with active reproduction and potential for future growth, as noted in several long-term studies on Asian elephant demography.

Although the adult segment is the largest, the substantial number of calves suggests that recruitment is robust, potentially balancing any adult mortality over time. Such a structure is favourable for the long-term conservation of the species, provided that threats such as habitat loss and human-elephant conflict are mitigated effectively.

5.1.2. AGE-SEX CLASSIFICATION BREAKDOWN

The age-sex breakdown of the population reveals the following distribution across categories:
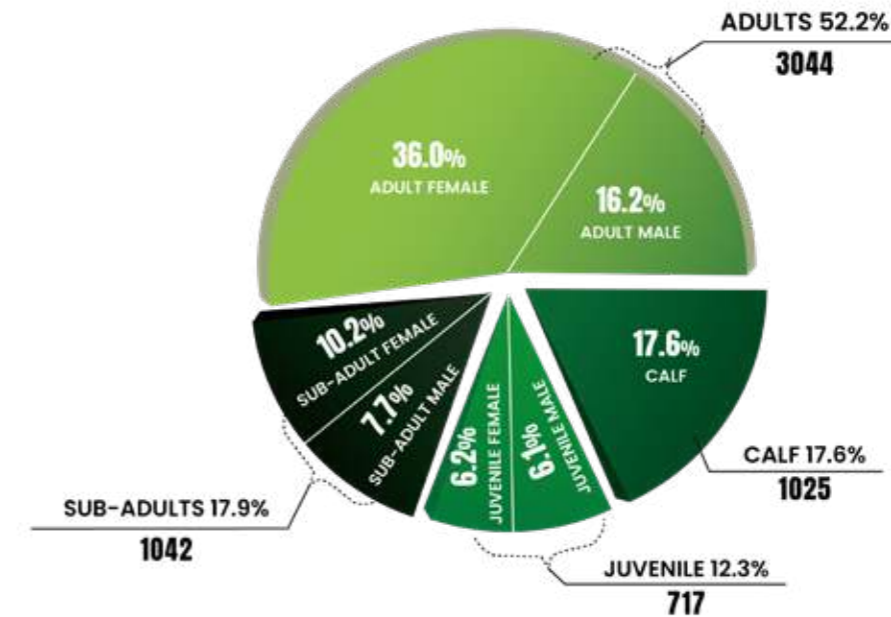
Graph 5.2: Age classification of Elephants in Assam

5.1.3. SEX-RATIO ANALYSIS

• Male Population (Total across Age Classes Excluding Calves):
  944 (Adult Male) + 447 (Sub-adult Male) + 357 (Juvenile Male) = 1,748

• Female Population (Total across Age Classes Excluding Calves):
  2,100 (Adult Female) + 595 (Sub-adult Female) + 360 (Juvenile Female) = 3,055

Male to Female Ratio is 1: 1.75
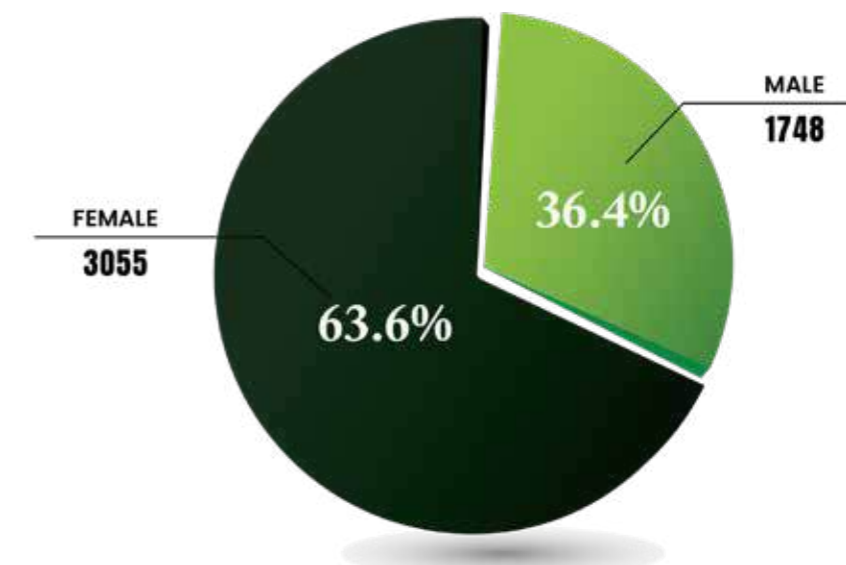
Graph 5.3: Sex-Ratio of Elephants in Assam (Excluding Calves)
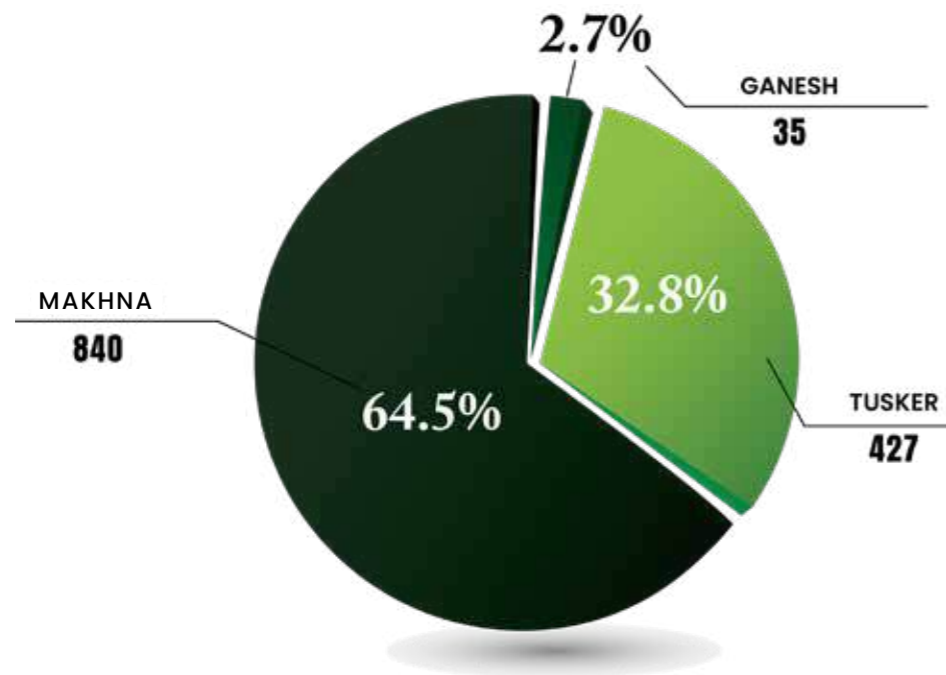
5.1.4. ANALYSIS OF MALE POPULATION

The EPE 2024 indicates that the male elephant population structure is dominated by Makhnas (64.5%), followed by Tuskers (32.8%), and a small proportion of Ganesh-type males (2.7%).

Tuskers, characterized by fully developed, long tusks, have historically been seen as symbols of genetic fitness and health. They play a vital role in breeding, passing on traits associated with good health and social dominance. However, their tusks make them prime targets for poachers, significantly reducing their numbers across various habitats. In Assam, as in other parts of India, tuskers are selectively targeted by poachers for their ivory, leading to a skewed male population structure in many elephant herds (Choudhury, 1999).

Makhna are adult males that lack tusks altogether, making them less susceptible to poaching. The high proportion of Makhna in Assam reflects a phenomenon observed across parts of northeastern India, where selective pressures from poaching have favored the survival of tuskless males. Despite their lack of tusks, Makhna play a critical role in breeding and maintaining the social structure of elephant herds.

Ratio Trends:

The 2024 EPE has shown an improvement in the Tusker to Makhna ratio (**1:1.97**) compared to the 2011 EPE (**1:2.63**), indicating a positive trend for Tuskers. This shift can be attributed the efforts to protect Tuskers, such as intensified patrolling and targeted anti-poaching measures.
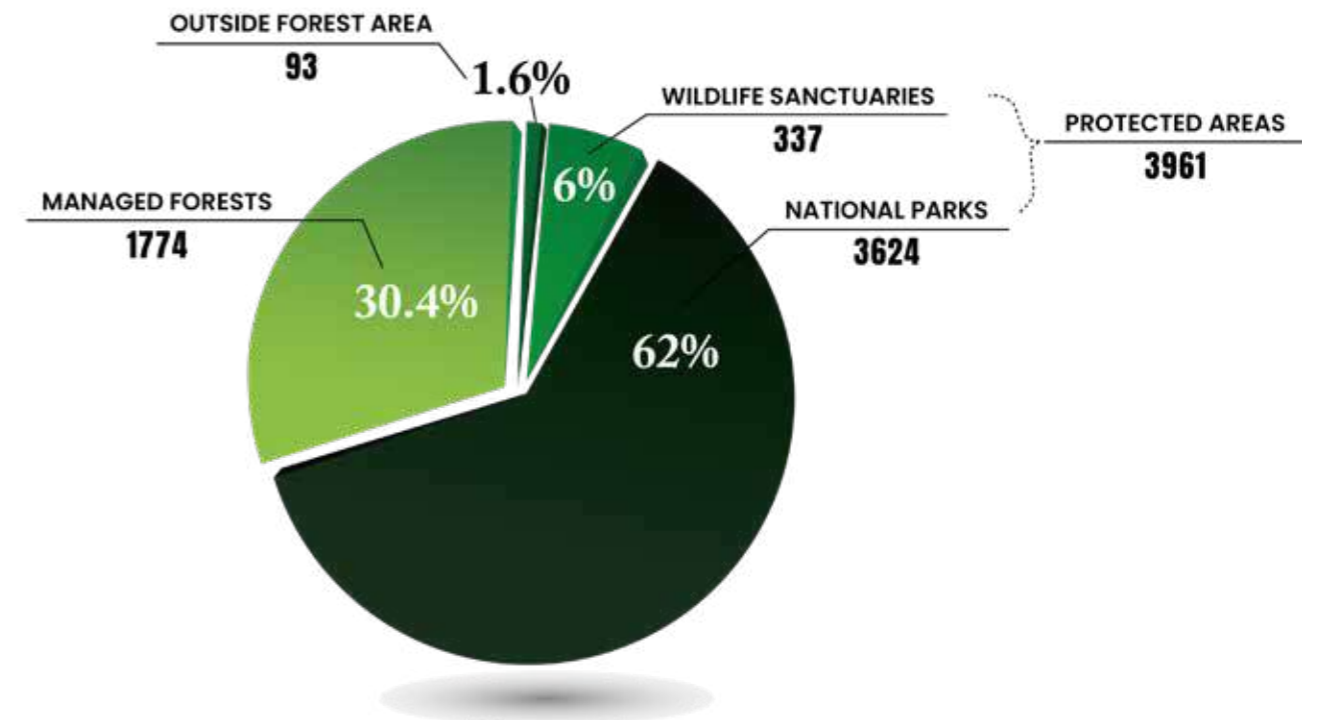
5.2. Population Distribution Across Different Land Categories

- **Protected Areas (68%):** The highest concentration of elephants is found in Protected Areas, comprising both National Parks and Wildlife Sanctuaries. These PAs are crucial for the long-term viability of the species, serving as core breeding grounds and primary habitats that support breeding, movement, and sustenance. Given their critical role, stringent protection and active habitat management are imperative to maintain healthy populations within these areas.

- **Managed Forests (30.4%):** Managed Forests serve as important secondary habitats, providing seasonal refuge and maintaining landscape connectivity between Protected Areas. Nearly one-third of Assam's elephant population depends on these forests, underscoring their significance within the broader conservation matrix. Their role in complementing Protected Areas makes them vital for ensuring continuous movement and genetic flow across fragmented landscapes.

- **Outside Forest Areas (1.6%):** The small proportion of elephants found outside forested areas indicates habitat fragmentation and the encroachment of human settlements into traditional elephant ranges. These regions, often bordering agricultural fields or villages, are prone to increased human-elephant conflict. Focused interventions, including habitat restoration, conflict mitigation strategies, and community-based conservation initiatives, are essential to reduce conflict and safeguard both elephants and local communities.

Graph 5.4: Sex-Ratio of Elephants in Assam

Graph 5.6: Elephant Population Distribution Across Different Land Categories

## 5.2.1. ELEPHANTS IN ELEPHANT RESERVES

The distribution pattern of elephants in Assam, as evidenced by EPE 2024, reveals that a significant majority of the state's elephant population is concentrated within the 5 Elephant Reserves, accounting for nearly 81.5% of the total elephant population. In contrast, only 18.5% of the elephants are located outside these reserves, highlighting the crucial role ERs play in providing secure habitats and mitigating human-elephant conflict.

The EPE 2024 data suggests a varied density of elephants within these reserves, which reflects differing levels of habitat quality, fragmentation, and anthropogenic pressures. The density ranges from 79 elephants per 100 sq km in Chirang-Ripu ER to as low as 6

elephants per 100 sq km in Dhansiri-Lungding ER. These values provide insights into habitat suitability, fragmentation levels, and human disturbance across different reserves.

Chirang-Ripu Elephant Reserve has the highest density at 79 elephants per 100 sq km, reflecting its critical role in the conservation of elephant population in western Assam.

Dhansiri-Lungding Elephant Reserve shows the lowest density at 6 elephants per 100 sq km. The extremely low density highlights severe challenges, including habitat fragmentation, human disturbances, and perhaps even underreporting due to the difficult terrain of the region.
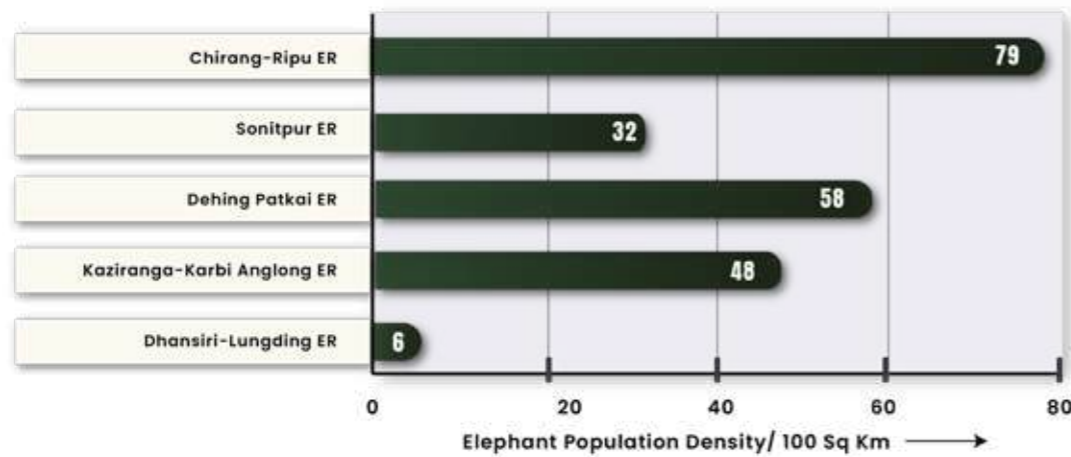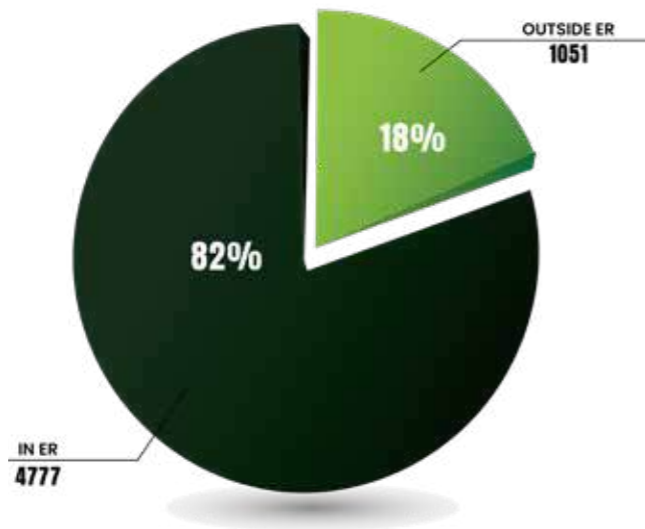
Graph 5.7: Elephant Population Density across Different ERs

5.3. Population Trend Analysis (1993-2024)
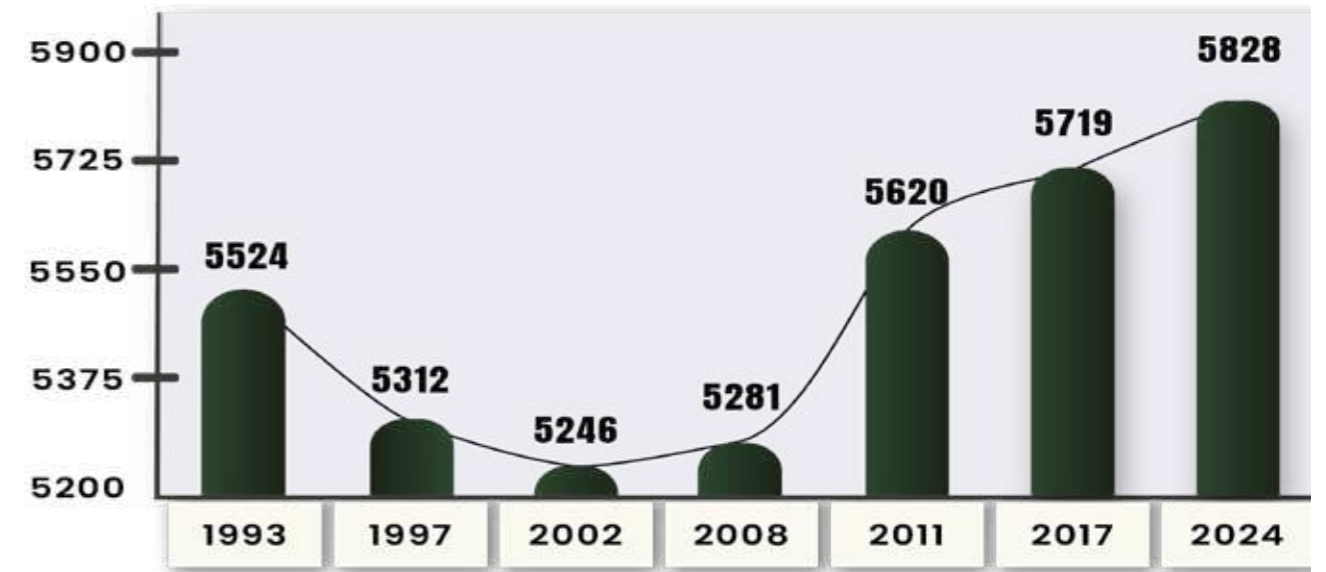
Graph: Elephant Population Trend across the years

The elephant population in Assam has experienced a positive growth, increasing from **5,719** in 2017 to **5,828** in 2024. Since 1993, the population has shown remarkable resilience, never dropping below 5,200 individuals despite significant habitat fragmentation, poaching pressures, and increasing human encroachment. This steady trend highlights the effectiveness of conservation measures while also signaling areas of concern that need further attention.

KEY OBSERVATIONS:

a. **Migratory Populations:** Some herds were not recorded in the estimation due to seasonal migrations to neighbouring states (e.g., Bhairabkunda herd into Bhutan and herds from Sonai Rupai WLS and Kamrup West into Arunachal and Meghalaya, respectively).

b. **Area of Concern – Dhansiri-Lungding:** The reserve recorded the lowest density (6 elephants per 100 sq km), indicating severe habitat degradation and fragmentation.

c. **Human-Dominated Landscapes:** The presence of elephants in revenue areas underscores the need for targeted conflict mitigation strategies to address increasing human-elephant interactions.

5.4. Recommendations for Future Conservation Strategies

a. **Enhanced Protection Measures:** Anti-poaching efforts should be strengthened, especially in low-density areas and vulnerable corridors, through increased patrolling and strategic deployment of forest personnel.

b. **Habitat Restoration:** Habitat quality within Protected Areas should be improved, and connectivity between fragmented habitats across Elephant Reserves and adjoining forest areas should be enhanced to facilitate safe movement and reduce the risk of isolation.

c. **Notification of Critical Corridors:** All the elephant corridors should be identified and notified to secure long-term movement pathways for the species, thereby reducing the risk of habitat fragmentation and ensuring safe passage.

d. **Long-Term Monitoring and Research:** Advanced methodologies, such as radio-telemetry, should be implemented to study movement patterns, enhance habitat use data, and adapt management strategies for effective conservation.

e. **Human-Elephant Conflict Mitigation:** Large-scale Community-based interventions, early warning systems, and innovative conflict mitigation strategies should be established in high-conflict zones to safeguard both human and elephant populations.

The Elephant Population Estimation 2024 provides a detailed and comprehensive picture of Assam's elephant population, underscoring the effectiveness of ongoing conservation efforts while highlighting emerging threats. The observed trends suggest a relatively stable population, but challenges like habitat degradation, fragmentation, and escalating human-elephant conflict must be addressed to ensure the long-term conservation of the species.

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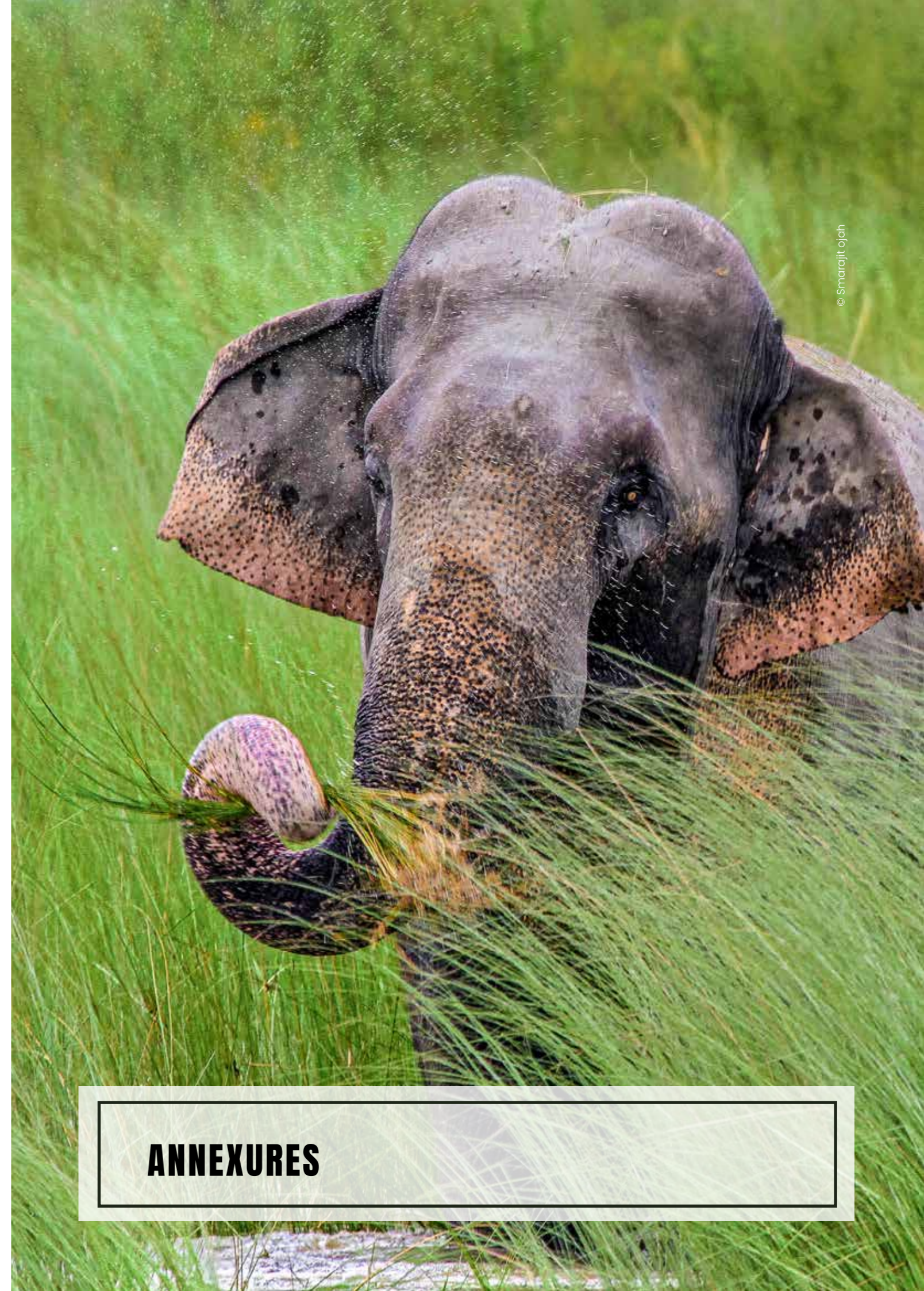
ANNEXURES

EXPERT COMMITTEE FOR EPE 2024

1	Sri B N Talukdar, AFS (Retd)	Chairman
2	Sri Pankaj Sarma, AFS (Retd)	Member
3	Sri Kaushik Barua, SBWL Member	Member
4	Smt Jayashree Naiding, IFS	Member Secretary

EDITING TEAM FOR EPE 2024

1	Sri Piraisoodan B, IFS	DFO, Nameri
2	Sri Arun Vignesh C S, IFS	DFO, Kaziranga
3	Smt Jayashree Naiding, IFS	Senior Wildlife Warden

GIS TEAM FOR EPE 2024

1	Sri Piraisoodan B, IFS	DFO, Nameri
2	Sri Arun Vignesh C S, IFS	DFO, Kaziranga
3	Sri Asish Immanuel Baglary	Biologist, Nameri Tiger Reserve
4	Sri Abhijit Goswami	GIS Consultant, PMMC- APFBC
5	Smt Geeta Talukdar	Game Watcher, Office of PCCF (WL)
6	Smt Dipty Singha	Computer Operator, office of PCCF (WL)

LIST OF FOREST DIVISIONS AND OFFICERS IN-CHARGE DURING EPE 2024

S. No	Name of the Forest Divisions	Officer In-Charge for EPE 2024
1	Manas National Park & Tiger Reserve	Sri Rajen Choudhary, IFS
2	Eastern Assam WL Division	Sri Arun Vignesh CS, IFS
3	Western Assam WL Division	Sri Piraisoodan B., IFS
4	Biswanath WL Division	Sri Khagesh Pegu, IFS
5	Nagaon WL Division	Sri Jayanta Deka, AFS
6	Mandalgoi WL Division	Sri Pradipta Baruah, AFS
7	Guwahati WL Division	Ms. Pasupuleti Monica Kishore, IFS
8	Tinsukia WL Division	Sri Khanindra Nath Das, AFS
9	Kokrajhar WL Division	Sri Jayanta Brahma, AFS
10	Barak Valley WL Division	Sri Palve Vijay Trimbak, IFS
11	Doomdooma	Sri Mriganka Borah, AFS
12	Digboi	Sri TC Ranjith Ram, IFS
13	Dibrugarh	Sri B V Sandeep, IFS
14	Sibsagar	Mrs. Sayambrita Dutta, AFS
15	Majuli	Sri Joyram Baruah , AFS
16	Jorhat	Sri Nanda Kumar, IFS
17	Golaghat	Sri Sushil Kr.Thakuria, IFS
18	Nagaon South	Sri Champak Deka, ACF
19	Nagaon	Sri Kadam Suhas Tarachand, IFS
20	Sonitpur West	Sri Nripendra Nt. Kalita, AFS

21	Sonitpur East	Sri Biswa Jyoti Das, AFS
22	Lakhimpur	Sri Ashok Deb Choudhury , AFS
23	Dhemaji	Sri Krishna Kamal Deori, AFS
24	Kamrup East	Sri Rohini Ballave Saikia, IFS
25	Kamrup West	Smti Dimpi Bora, IFS
26	Goalpara	Sri Tejas Mariswamy, IFS
27	North Kamrup	Sri Sunneydeo Indradeo Choudhury, IFS
28	Aie Valley	Sri Rajendra Singh Bharti, IFS
29	Dhubri	Sri Hiranya Pathak, AFS
30	Cachar	Sri Palve Vijay Trimbak, IFS
31	Karimganj	Sri Chiranjeev P Jain, IFS
32	Hailakandi	Sri Akhil Dutta , AFS
33	Kachugaon	Sri Bhanu Sinha, AFS
34	Baksa	Sri Ranjit Konwar, AFS
35	Dhansiri	Sri Dibakar Das , AFS
36	Chirang	Sri B.N.Patiri, IFS (expired on 02.06.2024)
37	Parbotjhora	Sri Ranjit Konwar, AFS
38	Haltugaon	Sri Jayanta Brahma , AFS
39	Karbi Anglong East	Sri Bikram Singh Rongpi, IFS
40	Karbi Anglong West	Sri Bibison Tokbi, ACF
41	Hamren	Shri Rajib Engti, AFS
42	Dima Hasao East	Sri Tunu Langthasa , AFS
43	Dima Hasao West	Sri Tunu Langthasa , AFS

CENTRAL OBSERVERS AND THEIR ASSIGNED DIVISIONS FOR EPE 2024

S. No	Name of the Observers	Divisions allotted
1	Sri Ramesh Kr. Gogoi, AFS (Retd)	Doom Dooma, Digboi, Dibrugarh, Sivasagar
2	Dr. Ranjan Das, Prof. Tinsukia College (Retd)	
3	Sri Kaushik Barua, Member SBWL	Jorhat, Golaghat, Majuli
4	Sri R.C. Bhattacharjee, IFS, (Retd) Former CF	Dhemaji, Lakhimpur, Sonitpur East
5	Dr. Anupam Sharma, Team Leader, Brahmaputra Landscape, WWF India	
6	Sri. Hiten Kr. Baishya, Landscape Coordinator, North Bank Conservation Programme, Brahmaputra Landscape, WWF-India	Dhansiri, Sonitpur West
7	Dr. Anowaruddin Choudhury, IAS (Retd.)	Kamrup East, Kamrup West
8	Dr Bibhuti Prasad Lahkar, Scientist, Aaranyak; Member, Steering Committee, Project Elephant, MoEF&CC, GOI	Goalpara, Baksa, North Kamrup
9	Dr Rathin Barman, Joint Director, WTI	Haltugaon, Kachugaon, Chirang,
10	Dr Jihosuo Biswas, Coordinator, Primate Research Centre NE India	Aie-Valley, Parbatjhora, Dhubri.
11	Prof. Parthankar Choudhury, Assam University, Silchar	Karimganj, Cachar, Hailakandi, N.C. Hills
12	Dr. Panna Deb, Asstt. Professor, Assam University, Silchar	
13	Dr. Pranab Jyoti Bora, Sr.Landscape Coordinator, Brahmaputra Landscape, KKL, WWF-India	Karbi Anglong East, Karbi Anglong West, N.C. Hills, Nagaon, Nagaon South
14	Sri Amit Sharma, Lead, Rhino Conservation	
15	Achinta Barua (Manju Barua), Conservationist, Wildgrass, Bokakhat	Kaziranga NP & TR
16	Sri Pallab Deka AFS (Retd) former DCF	

SCHEDULE OF TRAINING OF TRAINERS (TOT) FOR EPE 2024

Date & Time	Venue	Resource Persons	Trainer Officer (ToT)	Divisions covered by Trainer Officer
19.01.2024 (From 11 am to 4 pm)	Assam State Zoo, Guwahati	1. Sri B. N.Talukdar, AFS, (Retd.), former DCF 2. Sri Pankaj Sarma, AFS, (Retd.) 3. Sri Kaushik Barua, Member, SBWL, Assam	Sri Mukut Das, AFS Sri Bhanu Sinha, AFS Sri Subodh Talukdar, AFS Sri Rajib Hazarika, ACF Smti. Firfilla Basumatary, FR	Dhansiri, North Kamrup, Mangoldoi WL
			Ms. Pasupuleti Monica Kishore, IFS Sri Tejas Mariswamy, IFS Sri Sailen Das, AFS Sri Mrigen Barua, ACF Sri Pranjal Barua, FR	Kamrup East, Kamrup West, Guwahati WL, Goalpara
			Sri Muanthang Tungnung, IFS	Dima Hasao East, Dima Hasao West, Hamren
			Sri Kadam Suhas Tarachand, IFS Sri Rajib Ingty, ACF Sri Champak Deka, ACF	Nagaon, Nagaon South, Nagaon WL
			Sri Chiranjeev P Jain, IFS Sri Motiur Rahman, AFS, (Retd.), former DCF Sri Vijay Trimbak Palve, IFS	Karimganj, Hailakandi, Cachar, Barak WL
21.01.2024 (From 11 am to 4 pm)	Manas National Park, Barpeta Road	1. Sri B. N.Talukdar, AFS, (Retd.), former DCF. 2. Sri Pankaj Sarma, AFS, (Retd.), former DCF 3. Sri Kaushik Barua, Member, SBWL, Assam	Sri Piraisoodan B, IFS Sri Sunnydeo Indradeo Choudhury, IFS Sri Ranjit Konwar, AFS Sri Aher Ali, AFS	Kokrajhar WL, Aie Valley, MNP &TR, Baksa, Kachugaon, Haltugaon, Chirang, Parbatjhora

Date & Time	Venue	Resource Persons	Trainer Officer (ToT)	Divisions covered by Trainer Officer
23.01.2024 (From 11 am to 4 pm)	Kaziranga National Park, Bokakhat	1. Sri B. N.Talukdar, AFS, (Retd.), former DCF 2. Sri Pankaj Sarma, AFS, (Retd.), former DCF 3. Sri Kaushik Barua, Member, SBWL, Assam	Sri Khagesh Pegu, IFS Sri Ashok Dev Choudhury, DCF Sri Pankaj Bora, FR	Dhemaji, Lakhimpur, Biswanath WL
			Sri Arun Vignesh, IFS Sri Mriganka Bora, AFS Sri Jayanta Deka, AFS	Sonitpur East, Sonitpur West, WAWL
			Sri Sandeep Bendi, IFS Sri K.N. Das, AFS Smti Santana Medhi, FR	Doom Dooma, Digboi, Tinsukia WL
			Sri Ranjit Ram, IFS Sri Deben Kalita, AFS Sri, Ritu Paban Borah AFS	Dibrugarh, Sivasagar, Jorhat
			Sri Rohini Ballav Saikia, IFS Sri S.K.Thakuria, AFS Sri Ashok Das, ACF	Karbi Anglong East, Karbi Anglong West, Golaghat, KNP
			Smti. Jayashree Naiding, IFS Sri Biswajyoti Das, Sri Debasish Borgohain, FR	Dima Hasao East, Dima Hasao West, Hamren

BIBLIOGRAPHY

1. Bist, S. S. (2002). An overview of elephant conservation in India. The Indian Forester.

2. Choudhury, A. U. (1999). Status and conservation of the Asian elephant (Elephas maximus) in Northeastern India. Mammalian Review, 29(3), 141-173.

3. India State of Forest Report (ISFR). (2021). Forest Survey of India. Ministry of Environment, Forest and Climate Change, Government of India.

4. IUCN. (2020). Elephas maximus. The IUCN Red List of Threatened Species 2020: e.T7140A45818198. https://doi.org/10.2305/IUCN.UK.2020-3.RLTS.T7140A45818198.en

5. Ministry of Environment, Forest and Climate Change (MoEFCC). (2017). Elephant Population Census 2017. Project Elephant Directorate.

6. Project Elephant Directorate. (2011). Report on the status of Project Elephant. Ministry of Environment, Forest and Climate Change, Government of India

7. Sukumar, R. (2003). The living elephants: Evolutionary ecology, behaviour, and conservation. Oxford University Press.

8. Sukumar, R. (2011). The story of Asia's elephants. Marg Publications.

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