

# RHATC On the Rocks: Experiencing the Uniqueness of Tumkur’s Rocky Outcrops and Inselbergs

The second field trip of RHATC took us to the rocky outcrops of Tumkur, Karnataka. Unlike our first field trip, we had little time to anticipate what lay ahead. Nonetheless, the excitement of being on field to witness the landscape was undeniable, especially as the theme for RHATC 2024 is “Inselbergs and Rocky Outcrops”.

The fellows had the privilege of interacting with a group of resource persons working on rocky outcrops in different parts of the country. These sessions provided a comprehensive understanding of the biodiversity, conservation challenges, and ecological importance of these unique ecosystems.

Prior to and during the field trip, we interacted with Dr Aparna Watve, a rocky outcrop specialist and member of the IUCN SSC Western Ghats Plant Specialist Group. Aparna has worked extensively on the flora of rocky outcrops in the northern Western Ghats. Her insights into the adaptations of plants in these ecosystems gave us a deeper appreciation for their resilience and ecological roles.

We also had the opportunity to learn from Sanjay Thakur, a wildlife conservationist who has worked in the central Indian landscape on human-leopard interactions, wildlife trade, and law enforcement with organizations such as WCT, WWF-India, and TRAFFIC-India. His experience in addressing human-wildlife interactions and illegal wildlife trade provided valuable lessons in conservation.

We also learnt from Dr. S.R. Ganesh who accompanied us on our trip to Tumkur, a herpetologist and research director at the Kalinga Foundation, who shared his knowledge of herpetofauna found on rocky outcrops. He is well-known for his work on the reptiles of southern India, including the discovery and re-description of several species. His sessions highlighted the importance of reptiles in rocky ecosystems, their behaviour and natural history.

During the trip, we were also joined by Dr. C. Srinivasulu and Dr. Bhargavi Srinivasulu, wildlife biologists and taxonomists from Osmania University, Hyderabad who have worked extensively on bats and reptiles in southern India. Their engaging discussions on taxonomy and conservation connected scientific knowledge with practical approaches for protecting biodiversity.

At Tumkur, we interacted with resource persons Sachin Gowda, Secretary of Wildlife Awareness and Reptile Conservation Organization, who is involved in education and outreach, snakebite mitigation. He also works on understanding the effects of urbanization on snake home ranges. Karthik Nayaka, a wildlife researcher and IBCN state coordinator for BNHS in Karnataka, who studies migration of river terns in Bhadra with BNHS was constantly helping sight different birds during our trails. S. Raghunandan, an independent researcher who focuses on the ethnobotany of the flora of southern India and

works with the research unit of the Karnataka Forest Department kept us intrigued with amazing information about the flora found on Devarayanadurga. This well-rounded understanding of rocky outcrops was built on the foundational knowledge we gained from our interactive discussions and classes with Sanjay Molur on the evolution of life on Earth, its biogeography, and how “rocks shape life and life shapes rocks”.

Such a comprehensive knowledge-base, equipped us to understand rocky outcrops, their ecology, the biodiversity, and the conservation challenges they face, thereby helping us to learn and fully experience throughout the field trip at Tumkur.

## 27 DECEMBER 2024 – JOURNEY TO TUMKUR

On 27 December, we stood amidst the serene hues of dawn at 5:00 AM, ready with our luggage and loading the van. The sky gradually shifted from deep blue to lighter tones as we began our journey from Coimbatore. Travelling through forests and villages, our playlist evolved just like the changing shades of the sky.

Upon reaching the Karnataka Forest Checkpost, we paused for a bit of birdwatching with Srinivasulu. While we observed birds, an unexpected companion joined us—a dog, tagging along as though intrigued by our discussion about how stray dogs pose a threat to wildlife. The conversation eventually transitioned to taxonomy, where Srinivasulu



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explained the nuances of scientific naming and binomial nomenclature.

After a brief tea break, we resumed our journey and finally arrived in Tumkur after 12 hours of travel with stops for eats, toilet breaks, and discussions. The guest house where we stayed – Eesha Farm House in Thimmanayakana Halli, Tumkur, just adjacent to Devarayanadurga Forest, was calm and beautiful, surrounded by rocky outcrops on all sides. Spotting the peaks of these outcrops sparked our excitement to climb them the next day.

After settling in and unpacking, we set out for a bit of bat detection later in the evening. Srinivasulu and Bhargavi introduced us to the intriguing behaviour of bats using bat

echolocation sensors. We identified three bat species—*Pipistrellus ceylonicus*, *Pipistrellus tenuis*, and *Scotophilus* sp. Each species' unique frequency range helped us distinguish their calls, which could be categorized as either feeding or social calls. Social calls are used for communication, while feeding calls are heard when bats hunt.

It was an unforgettable experience—learning under the dark, star-lit sky, surrounded by glowing fireflies, and gaining invaluable knowledge from two of our most inspiring mentors. All the fellows were highly motivated and excited to set out and explore such a unique landscape through the rest of the trip.

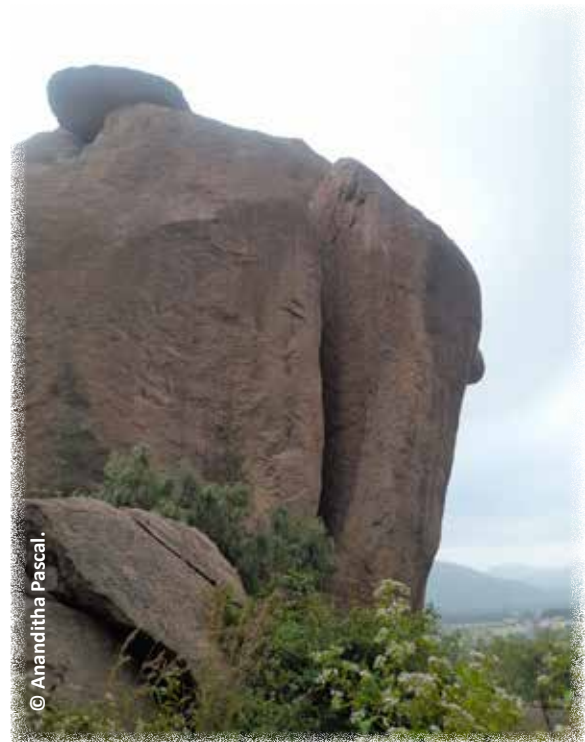
## 28 DECEMBER 2024 – A DAY OF SERENE AND CHAOTIC ENCOUNTERS WITH NATURE

We started the day with great excitement and enthusiasm for an early morning birding session on the rocky hill situated opposite our place of stay. Accompanied by Srinivasulu and Bhargavi, we soon reached the hill and began climbing upwards to explore the uniquely shaped rock structures present on the hill. We had a great time exploring these wonderful rock formations and discussing about the historic processes behind the evolution of such large rock boulders.

As we trekked further away, we got into the actual birding session, during which we spotted several birds including the Red-wattled Lapwing, the Rufous Treepie, the White-browed Bulbul, the Large Pied Wagtail, the Scaly-breasted Drongo, the Flameback Woodpecker, the White-throated Kingfisher, the Indian Robin, the Red-vented Bulbul, the Crimson-throated Barbet, and the Purple Sunbird. These wonderful sightings were also accompanied by the calls of the White-cheeked Barbet and flowerpeckers. On our way back, we spotted a raptor, whose call seemed like that of a Crested Serpent Eagle. It was such a majestic sight to see the bird scanning the ground, probably hunting or guarding its territory.

We soon returned to the farm house and after having a quick breakfast, we went to Devarayanadurga Peak Viewpoint through Jenugudu jungle trail. We were accompanied by Sanjay, Ganesh, the Srinivasulus, Trisa, Sachin, Karthik, and Raghunandan. At the beginning of the trail, we saw a group of Verditer Flycatchers *Eumyias thalassinus* and Indian White-eyes

*Zosterops palpebrosus* flying freely and feeding. The team spent a good amount of time observing and photographing these beautiful birds. Additionally, we spotted a *Parus cinereus* and a Yellow-throated Bulbul *Pycnonotus xantholaemus*, a species endemic to the rocky regions of southern India.





Further along the trail, Raghunandan showed us several medicinal plants. For instance, he introduced us to *Celastrus paniculatus*, a liana (woody climber) whose seed oil is used in Indian medicine. He also pointed out the *Apamarga* plant, whose seeds are utilized in Ayurveda for various health problems. Another interesting spotting was the *Aristolochia indica* climber, a host plant for the Common Rose *Pachliopta aristolochiae* and Southern Birdwing *Troides minos* butterflies.

A slight brush against the brown bristles of *Mucuna pruriens* seed pods made this experience unforgettable, as they cause itchiness. We also observed Western Ghats endemic plants like *Cipadessa baccifera*, whose seeds are consumed by bulbuls.

Further along the trail, we spotted the eggs of rock geckos in a rock crevice. As we trekked further we crossed by a spot where we found fresh leopard scat. The fellows were thrilled, especially for those who had seen it for the first time! It was just a matter of time and probability. Although we could suspect the possible paths

the leopard had taken, we were probably already being watched by the leopard! As the team moved further up, we came across a beautiful landscape of exposed rock, shaped by millennia of weathering.

The team stopped to absorb the scenic view and appreciate the work of geographical evolution right in front of our eyes. We climbed further up where we stopped by the possible ruins of a shelter for cavalries of old armies. It was here that Ganesh and Srinivasulu spotted and chased after a very interesting gecko that appeared to be like a dark form of *Hemidactylus whitekari*. We stayed here for a while, clicking some photographs and resting, before heading back. As we started to go back, we saw a rock agama basking in the sun and headed back to the farm house.

During the night, we accompanied Ganesh for herping to the hill opposite our place of stay. The landscape appeared completely different under the cover of darkness.

During the herping session, we spotted several fascinating species, including *Hemidactylus giganteus*, *H. srikanthani*, *H. reticulatus*, and an unidentified gecko species. We also observed various species of moths. Additionally, we spotted a Green Vine Snake resting on tree branches.

While we were busy looking at the geckoes, we had an unexpected encounter with a Sloth



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Bear. The bear issued warning calls, which alerted us to its close proximity. Understanding the gravity of the situation, we quickly and calmly retreated to our stay without wasting any time. It was an exhilarating and memorable experience that showcased the vibrant nocturnal life of the region.

### 29 DECEMBER 2024 - AN ADVENTUROUS JOURNEY IN SEARCH OF BATS

After a nerve-wrecking close encounter with a Sloth Bear the previous night, we mustered our courage and geared up for another adventure towards the same hill top—this time in search of bats. The local villagers shared an interesting piece of information that farmers in the area used to collect bat guano from the rocky caves of the hill to use as fertilizer for their crops.

Our day began early, at 7:00 AM, with Srinivasulu and Bhargavi. We were guided by Yogesh and Pavan, locals who were familiar with the

landscape. Walking through the flat lands we reached the foothills from where the real trek unfolded. Without a previously cleared trail, the team had to find their own way to the bat cave at the hilltop with the guidance of Yogesh and Pavan. As we ascended, the vegetation transformed—starting with moist grass and shrubs at lower altitudes, gradually giving way to woody, thorny vegetation and bamboo shoots higher up. We moved carefully, helping each other during the steep climb up towards the hill top. As we reached higher elevations, the landscape changed dramatically.

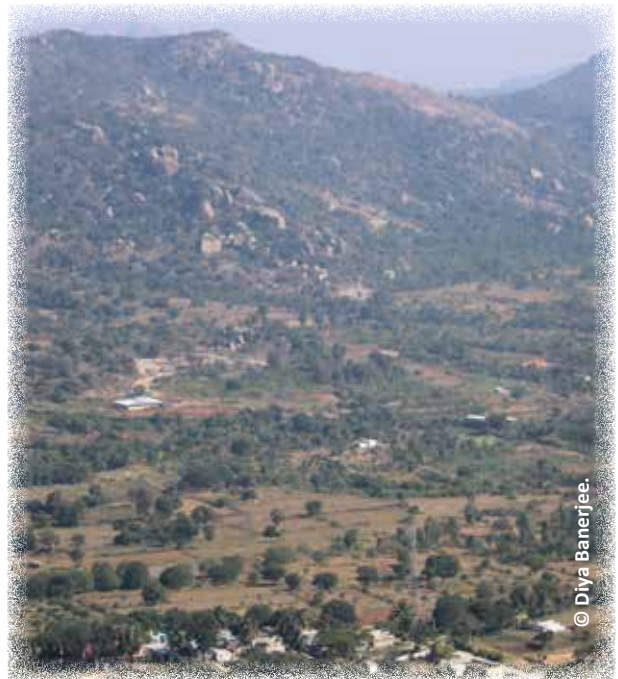
The lush greenery gave way to withered, dry grasses, creating an environment highly prone to wildfires. The thought of such a disaster threatening the diverse flora and fauna made us acutely aware of the fragility of this ecosystem. Along the way, we stumbled upon claw marks etched into the soil—clear evidence of a bear’s foraging activity. It was fascinating to imagine the strength and sharpness of its claws as it dug for tubers.

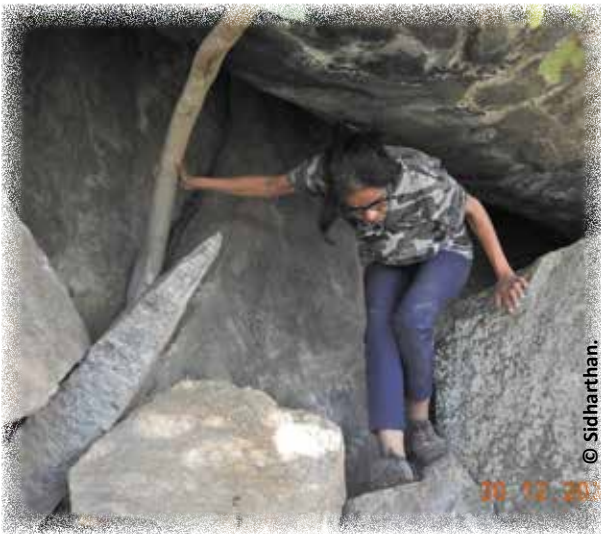
Finally, after a challenging climb, we arrived at the hilltop caves. Yogesh pointed out a small cave in the corner of the massive rock, mentioning that farmers collected guano from there. However, a quick inspection revealed no bats. Just as our hopes began to dwindle, Srinivasulu spotted a solitary bat, reigniting our enthusiasm. Encouraged, Pavan guided us to another crevice between two rocks. This time, as Srinivasulu and Bhargavi carefully examined the crevice, we spotted bats fluttering inside. Excitedly, we took out the bat echo detector to record the frequency of their echolocation calls. Though the bats were too far for us to see clearly, Srinivasulu and Bhargavi, with their expertise, identified them as Black-bearded Tomb Bats *Taphozous melanopogon*.

We observed their behaviour for a while, noting a larger, inaccessible crevice higher up the rock where more bats likely roosted. Satisfied with the trek up to these caves and witnessing these uniquely evolved tomb bats, we relaxed to enjoy the breath-taking scenery from the hilltop, soaking in the serene beauty of the landscape.

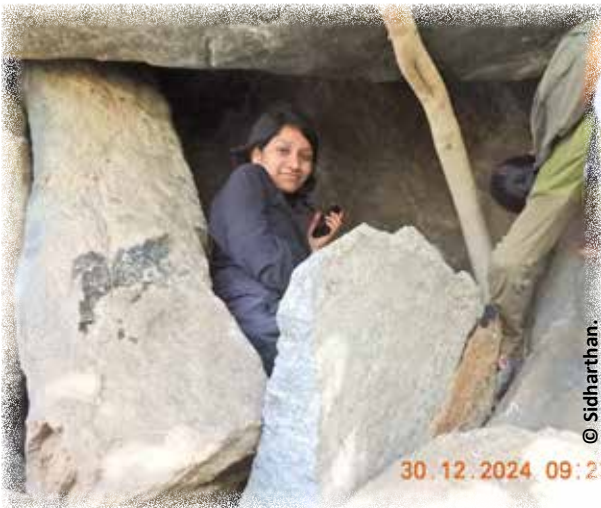
The descent proved even more challenging than the climb. With some careful trekking down, occasional slips, and plenty of teamwork, we finally reached the base by noon. Hungry and tired, we enjoyed a hearty meal before heading for a swim in a nearby waterhole.

There, we found local children joyfully playing in the water. Unable to resist, we joined them, cooling off and sharing in their laughter. As the evening set in, we concluded our day with a mesmerizing observation of fireflies, their behaviour and how light spill-over from the nearby village would affect these sensitive





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insects. We were joined by Mr. Mathi, from Wild and Dark Earth, an organization involved in the research and conservation of fireflies in India. He was documenting the synchronous flashing behaviours of fireflies that light up every evening in the area where we were staying. We cherished these moments of connection with nature and each other.

The day was not just an adventure, a tough and satisfying climb up the hill, but also a core reminder of the ecological uniqueness that every ecosystem holds which requires every bit of equal effort towards protection and conservation.

### 30 DECEMBER 2024 - FROM TEMPLE TREKS TO GRASSLANDS

After days of thrilling yet challenging forest treks, our day began with an adventurous climb to a temple located on a hill top, followed by a visit to the Sloth Bear Wildlife Sanctuary in the afternoon, and concluded with a mesmerizing experience of blackbuck sightings in the evening. Throughout the day, Sanjay, Trisa and the fellows were accompanied by Sachin and Karthik, whose presence added to the excitement and camaraderie of our journey.

The day started as we boarded our traveller from our accommodation, heading towards Siddarabetta. A temple dedicated to the Hindu God Siddeshwara located at the top of Siddarabetta. Beyond this temple, several caves and rock structures are present. The group's excitement was palpable, and everyone's energy was at its peak when the team began to climb up the long stretch of stairs leading

to the temple. However, as we ascended the stairs of the temple, the initial enthusiasm gradually waned, prompting a much-needed halt for breakfast. Re-energized, we continued our climb, marvelling at the natural beauty surrounding us. The landscape was adorned with rocky outcrops hosting a mix of native and invasive plant species, creating a captivating spectacle.

Sparsely spaced trees with grasses found roots on the rocks or shallow soil. How did the roots of such huge trees manage their way into the rocks to be able to stand sturdily? If we had a way to look through the rock to witness the roots, it would've been so wonderful! What was distinct in the trees observed here was that they grew on bare boulders and not only crevices between rocks or shallow soil which was similar to the trees of the Rao Jodha desert rock park in Jodhpur, Rajasthan that one of us fellows had witnessed. In this context, one particular study requires a mention. This study conducted in southeastern Brazil analysed 30 specimens of two herbaceous plant species living on quartzite rocks – *Barbacenia tomentosa* and *B. macrantha*, both of the Velloziaceae family – and found specialized segments of densely packed hairs just behind the root tip. The roots were found to secrete malic and citric acids, likely from the fine hairs, that dissolve rock and release phosphates that the roots then absorb to acquire the nutrient phosphorus.

The same study also employed microscopy scans and found that the roots carve their own way into rocks, rather than growing along cracks (Teodoro et al. 2019). A similar adaptation could be employed by the several plant species that had managed to survive and grow on these



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bare rocks, including a wide canopied *Shorea* spp., a *Vitex altissima* tree which exhibited a unique woody trunk, a young *Adina cordifolia* and a *Sterculia colorata* tree with a glowing light brown trunk. What a learning experience it was to witness such wonderful species! As we ascended, we spotted a *Euphorbia* spp. growing in crevices between two rocks with an undergrowth of grasses. Soon, we reached a group of boulders forming beautiful caves and spaces. The team walked through these spaces to the other side, revealing to us a panorama of rocky outcrops, abundant grasses and occasional stunted trees in between. It was on this hill top here, that the team was privileged to witness the endangered Egyptian Vulture *Neophron percnopterus* soaring over the valleys. Dogs followed us from the beginning all the way to this point and we witnessed them chasing away the Bonnet Macaques, showing us the dangers that domesticated dogs present to wildlife.

Next, we journeyed to the Thimlapura Sloth Bear Sanctuary, where we were hosted with a refreshing lunch, after which we ventured into the forest. We were joined by Shivraj, the forest watcher, who guided us through this enchanting wilderness. Along the way, Shivraj shared fascinating insights about the local flora and their uses by humans. He pointed out plants like the Indian rosewood, mango ginger and told us about their usage. We learned about the medicinal properties of *Terminalia arjuna*, used to reduce blood pressure the mystical associations of the *Alstonia scholaris* (in Kannada called 'raktabati') often used in black magic rituals, and the *Gymnema sylvestre*, a creeper (in Kannada called 'madhunashini'),



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known for its diabetes-curing properties. We also saw a *Cassia fistula* tree, which is non-native, but is apparently a favourite among bears. Its bark aids in treating fractures in livestock. During our walk we also had the chance to snack on fruits of *Ziziphus mauritiana* (commonly called as 'ber'). We also saw *Ixora pavetta* also known as the Torchwood tree (in Kannada called 'goravi') whose sticks were used by the British as torchlights.



Along the way, we passed by ancient remnants of the British era, including a labour and kitchen house, as well as tanks that once served as drinking water sources for horses. We also had to fend off a surprise attack from ticks! A fact that fascinated us was that the trails we walked were not man-made but formed by the footsteps of Sambar Deer.

In the evening, we visited the Jayamangali (formerly Maidenahalli) Blackbuck Conservation Reserve, the only notified protected area in Tumkur district. Situated near the village of

Maidenahalli in Madhugiri Taluk, this reserve is a 798 acre patch of grassland on the Deccan Plateau. It is bordered by Anantapur district in Andhra Pradesh and is home to Karnataka's largest contiguous population of blackbuck, apart from the Ranibennur Blackbuck Sanctuary.

We were awestruck by the sight of these graceful creatures, witnessing large herds of blackbuck sprinting across the grasslands with effortless elegance. Their beauty and agility left us in awe and as the day drew to a close,





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we paused to soak in the breath-taking sunset, the sky painted in hues of orange and pink—a perfect ending to an unforgettable day.

31 January, 2025 - Breakfast with the CEO of TumkurZP.

On the last day of the year we left Eesha Farm House having spent four days filled with learning and adventure. The team had been invited by Prabhu G for a homely breakfast at his guest house. Prabhu G is an Indian Administrative Service (IAS) officer currently serving as the Chief Executive Officer (CEO) of the Zilla Panchayat in Tumkuru, Karnataka. In this capacity, he spearheads rural development and local governance initiatives, working to improve the lives of the district's residents through sustainable and impactful policies.

Beyond his administrative responsibilities, Prabhu G is deeply passionate about wildlife photography and nature conservation. His profound appreciation for the natural world is beautifully reflected in his photography, where he captures the intricate details of wildlife, the majesty of landscapes, and the rich diversity of

India's ecosystems.

Upon arrival at his guest house, we were captivated by his extensive bookshelf filled with books on wildlife and conservation. His remarkable collection reflected his deep connection to nature. During our interaction, he enthusiastically shared his journey in wildlife photography, showcasing

breathtaking photographs of elephants, tigers, leopards, and more. We were truly impressed by his extraordinary skills, his passion for wildlife, and his commitment to protecting and conserving natural habitats. We were impressed by his dedication towards the living world and the suggestions he gave us to improve our journey towards conserving species.

### 1 January 2025 - Returning home

The first day of the year 2025 was the last day of RHATC's second field trip. After a refreshing breakfast at Sanjay's parents' house in Bangalore, we set off to Coimbatore. On the Mysore-Bangalore highway, we drove past the rocky Ramnagara Hills, where iconic scenes from the movie "Sholay" were shot. The fellows marvelled at these towering inselbergs and rocky landscapes along the highway.

Our vehicles slowed down as Sanjay shared insights about the uniqueness of these ecosystems in the region. He spoke of the specialized species found here such as the *Hemidactylus* and *Cnemaspis geckos*, which have evolved through millennia on the unique

rocky outcrop landscapes. However, due to anthropogenic pressures several ecological changes have occurred, including a change in the vegetation patterns of the area. Additionally, we also witnessed the extensive mining and infrastructure development, including the highway's expansion, indicating a significant loss of habitat in these areas.

Later in the evening, as we travelled through the Sathyamangalam Tiger Reserve, where we were thrilled to spot elephants and a gaur, adding an unforgettable touch to our journey. After more than 12 hours of travel, we finally arrived home, bringing this enriching field trip to a close after a momo break at the Tibetan Camp at Odeyarpalya village in Karnataka.

## REFERENCE

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Finally, we owe our heartfelt gratitude to Sanjay Molur (his parents and sister for putting us up on the new years eve and feeding us) and the Zoo Outreach Organisation team for meticulously planning and organizing this unforgettable field trip. Their care and guidance ensured an enriching experience filled with invaluable learning opportunities that we will always cherish.

**Ananditha Pascal, Diya Banerjee, Dupati Poojitha, Gupta Priya, Himangshu Kalita, Jain Zeal, Koshik V Rao, Mohsin Ahmad, Shivangi Kanwar Chouhan & Sidharthan,** RHATC Fellows 2024–25, Zoo Outreach Organisation, Coimbatore, Tamil Nadu, India.

