

CONSERVING BIODIVERSITY OF THE EASTERN GHATS:

Challenges and the Way Forward

CONFERENCE PROCEEDINGS



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Discussion on issues pertaining to: Conserving the biodiversity of the Eastern Ghats with a special focus on the Red Sanders tree

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- April 30 to May 1, 2022
Session on Red Sanders

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NBA and IISER Tirupati teams
Photo Credits





About This Meeting

The Eastern Ghats are a unique set of mountains, in terms of geological history, physiography and ecology. These mountains do not form a continuous chain, but occur as separate clusters of hills that run largely parallel to the east coast of India. Sections of these were formed at different points in geological time, and range in age from 2.9 billion years old to 900 million years old. The base of the Tirumala Hills, where this Symposium is being organised, is comprised of 2000 million year old granite and gneiss rocks of the Archaen period, when the earliest life forms were just beginning to evolve on the planet.

Today the Eastern Ghats have their own distinct biodiversity, shaped by geology and climate, with many unique habitats and endemic species. Scientific research in this unique landscape is not commensurate with efforts in other parts of the country, and development agendas and human enterprise are causing rapid changes to this mountain belt and the surrounding plains. Much of the Eastern Ghats still remains to be discovered from a scientific point of view, particularly in Andhra Pradesh and Odisha. Collaborative efforts, partnership and dialogue with managers and practitioners are imperative for the rapid creation of knowledge and solutions.

This Symposium will bring together researchers and organisations who have worked in the region in the last two decades or more to consolidate existing knowledge and promote dialogue and collaborations. This is a two-day-long event organised by the National Biodiversity Authority and IISER Tirupati in Tirupati, with sessions being streamed online. In addition to scientific sessions and a session to discuss future priorities, the symposium will also host a special session on Red Sanders, showcasing projects funded by the National Biodiversity Authority. We believe that this conference will have far-reaching impacts, being the first such event in over a decade. Once we bring key stakeholders together, we hope the momentum generated will allow for future discussions and dialogue.

Schedule Day 1

April 30, 2022, Saturday

INAUGURAL SESSION

10.00–10.30

Dr. K. N. Ganesh
Welcome Address

Dr. Ramesh Sonti
An overview of Biology

Dr. Vinod B. Mathur
Keynote Address: Conserving biodiversity of the Eastern Ghats: Urgent need for synergistic research and conservation actions

14.15–14.30

RESEARCH TALK
Mr. Ashok Kumar
Conservation footprint of WWF- India in Eastern Ghats

14.30–15.15

Panel Discussion on Conservation Issues

14.15– 15.45

REVIEW SESSION
Review meeting: Red Sanders Projects (Closed Session)

PLENARY TALKS

10.30–11.30

10.30- 11.00: Dr. T. Pullaiah
An appraisal on the flora of Eastern Ghats, India

11.00- 11.30: Dr. Jayashree Vencatesan
Eastern Ghats of Tamil Nadu: A continued saga of misnomers and misdemeanors

PLENARY TALK

15.15–15.45

Dr. N. Parthasarathy
Ecological assessment of plant diversity in southern Eastern Ghats and promising areas of future research.

11.30–11.45



TEA BREAK



15.45– 16.00



TEA BREAK



SESSION ON RED SANDERS

11.45–13.15

Dr. Amit Kumar Srivastava
Bio-assay guided isolation of anti-cancer compounds from *Pterocarpus santalinus* and assessment of cytotoxicity, pharmacokinetics and detailed molecular mechanisms.

Dr. Deepak Kumar
Affinity ultrafiltration liquid chromatography (UF-LC) assisted identification and characterization of α -glucosidase and α -amylase inhibitory constituents from *P. santalinus* heartwood.

Dr. N. Senthilkumar
Bioprospecting potential of Red Sanders, *Pterocarpus santalinus* Linn.f., with special reference to health care and skincare properties.

Dr. C. Kunhikannan
Domestication, sustainable utilization and conservation of *Pterocarpus santalinus* (Red Sanders) genetic resources.

Dr. Rakesh Kumar
Phytochemical studies of *Pterocarpus santalinus* Bark for its potential utilization.

Dr. H. R. Prabuddha
Development of SSR markers and assessment of genetic diversity of natural populations of *Pterocarpus santalinus* L.f. distributed in the Eastern Ghats, India.

FOCUS GROUP DISCUSSION

16.00–17.30

Future directions with Forest Departments, SBBs, Scientific Institutions and Academia (Closed Session)

19.30– 21.30



DINNER



13.15–14.15



LUNCH



Schedule Day 2

May 1, 2022, Sunday

PLENARY TALK

09.30-10.00 **Dr. Anupama Krishnamurthy**
Understanding past vegetation history through pollen: case studies from southeast India

RESEARCH TALKS

10.00 - 10.15: **Ms. Swati Udayraj**
Pan-India to Tirupati: Understanding trends and patterns of squirrel occurrence.

10.15 - 10.30: **Dr. Shivani Jadeja**
Using citizen science to understand spatio-temporal patterns of occurrence of Danainae butterflies.

10.30 - 10.45: **Mr. Harsha Kumar**
Influence of citizen science drives in documenting moth diversity of India.

10.45 - 11.00: **Ms. Rutuja Kokade**
Mosquito biodiversity in the Eastern Ghats of southern Orissa and its implications for malarial incidence at various altitudes.

11.00 - 11.15: **Dr. Brawin Kumar**
Rediscovery of the Critically Endangered Elvira rat (*Cremnomys elvira*) in Eastern Ghats.

11.15 - 11.30: **Mr. Raja Bandi**
Understanding avian diversity in the Eastern Ghats through detailed mist-net based resurveys, and citizen science data.

11.30-11.45



TEA BREAK



11.45 - 12.00: Ms. Archita Sharma

Bird biogeography and possible cryptic speciation in the Eastern Ghats.

12.00 - 12.15: Dr. Bubesh Guptha

Fauna of Seshachalam Biosphere Reserve, Eastern Ghats, Andhra Pradesh.

12.15 - 12.30: Ms. Chiti Aravind

11.45-13.00 Creating an automated recorder detection framework for the Critically Endangered - Jerdon's Courser (*Rhinoptilus bitorquatus*).

12.30 - 12.45: Dr. Vikram Aditya

Mammals in the Northern Eastern Ghats - the present and the future.

12.45 - 13.00: Dr. Ashish Jha

Connecting the dots: Panmictic population of Yellow-throated Bulbul across the Eastern Ghats.

13.00-14.00

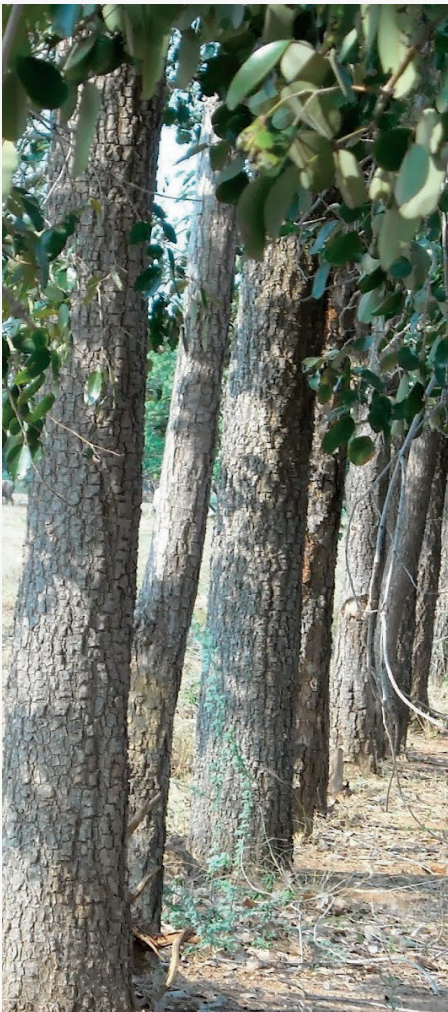


LUNCH



Session

On Red Sanders



Dr. Amit Kumar Srivastava

Bio-assay guided isolation of anti-cancer compounds from Pterocarpus santalinus and assessment of cytotoxicity, pharmacokinetics and detailed molecular mechanisms.

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Affinity ultrafiltration liquid chromatography (UF-LC) assisted identification and characterization of α -glucosidase and α -amylase inhibitory constituents from P. santalinus heartwood.

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Development of SSR markers and assessment of genetic diversity of natural populations of Pterocarpus santalinus L.f. distributed in the Eastern Ghats, India.

Abstracts



Conserving biodiversity of the Eastern Ghats: Urgent need for synergistic research and conservation actions

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The Eastern Ghats and surrounding landscapes are a discontinuous set of mountains along the east coast of India. These are home to endemic flora and fauna such as the Red Sanders Tree, Golden Gecko and Jerdon's Courser and they also harbour unique ecosystems. The coastal and low-lying zones around the Eastern Ghats are currently undergoing rapid urbanisation and are targets for several development projects, including highways, nuclear power and mining. This urgent agenda for developing economic corridors and development can have irreversible impacts on natural ecosystems and species. There is a felt need to encourage synergistic efforts and bring together various stakeholders in order to prioritise critical scientific research and conservation actions to harmonise developmental imperatives and conservation concerns. Compared to the Western Ghats scientific research in this region has been disproportionately low. Only a few national-level conferences have been organised over the past thirty years (1998, 2002 and 2007) to bring together diverse stakeholders to understand, streamline and address the conservation challenges in the Eastern Ghats. This Symposium, organised by the National Biodiversity Authority and IISER Tirupati will certainly act as a catalyst for future events, projects and partnerships, small and large, to focus on this scientifically under-explored landscape.

An appraisal on the flora of Eastern Ghats, India

S Karuppusamy¹ and T Pullaiah*²

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Eastern Ghats are broken hills with discontinuous ranges, and there are species-rich zones with plains in between, which explains the high diversity of wild and cultivated plants. 3,417 species of seed plants have been recorded in the area. Among them Dicotyledons are dominant (1172 genera and 2433 species). Monocotyledons occur in 34 families (304 genera and 978 species). Gymnosperms occur in two families with 2 genera with 6 species. Of the 178 families of Angiosperms, about 14 families have more than 40 species, contributing to 53.6 % of the total plant species. Among them Poaceae has the maximum number of species (365 in 112 genera), followed by Leguminosae (346 species in 72 genera). In recent years, many new species and genera have been described from the Eastern Ghats. For example, species in the genera *Huberantha*, *Xylopia*, *Calopogonium*, *Centrosema*, *Clidemia*, *Diodella*, *Asechynanthus* and *Monothecium* have been added to the Flora of Eastern Ghats by many authors. Genus *Odisha* is exclusively endemic to Eastern Ghats. Today, a total of 188 endemic species in 120 genera belonging to 46 families are known to occur in Eastern Ghats. These include 135 dicots and 50 monocots with 3 Gymnosperms. Poaceae have the highest representation with 27 endemics, followed by Acanthaceae (18 species), Asclepiadaceae (19 species) and Orchidaceae (15 species). In this talk, we will elaborate details of patterns seen with species, genera and families across the landscape.

Eastern Ghats of Tamilnadu : A continued saga of misnomers and misdemeanor

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Current classification and nomenclature of the hill ranges of Peninsular India is dichotomous viz Western and Eastern Ghats. Early Tamil historiography, however, based its nomenclature on climatic and biogeographical attributes and accordingly designated hill ranges. In Tamilnadu, this was rather stark, with the southern segment of the Eastern Ghats being a part of a section of the Western Ghats and being together treated as the Kongunadu hills. Long-term research in this zone clearly demonstrates the rationale and merit of this designation. The paper focuses on the conservation implications of the misnomer by tracing some of plans and programmes that have been implemented in this region.

Ecological assessment of plant diversity in Southern Eastern Ghats and promising areas of future research

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This presentation will be a brief on plant diversity inventories carried out in southern Eastern Ghats, and from this baseline, I suggest promising areas of future research. Plant diversity inventories undertaken at various spatial scales covering different forest types and elevational gradient over a quarter-century yielded data useful to science and also contributed to Global Tree and Liana Database. Results of alpha diversity of trees, lianas, and understory species in Kolli hills, Shervarayen and Kalrayan hills will be briefed. Large-scale (60-ha) tree diversity (272 species in 27,412 individuals) and liana diversity (175 climbers including 143 lianas in 32,033 individuals) bespeak the extent of biodiversity of the southern Eastern Ghats region and underline the need to check bio-invasion and human impacts (ore mining, plantations, roads, dams, etc.) to save biodiversity. Promising areas of future research (3–10-yr program) may include: 1) Long-term research plots to determine biodiversity changes and carbon sequestration potential in relation to climate change and other drivers 2) Community-level study of phenology, pollination, and seed dispersal systems comparison across forest types, as part of indepth study on plant-animal interactions and 3) Intensive species biology/population study of selected resourceful (ecological/economically valuable) species for sustainable resource utilization ultimately aiming at conservation of Eastern Ghats biodiversity.

Understanding past vegetation history through pollen: Case studies from southeast India

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Reconstructing past vegetation history is important to understand the long term dynamics of land cover changes. Such a perspective can be very useful while drawing up conservation-management plans for threatened ecosystems, be it forests or mangroves, by providing a basis for sustainability that goes beyond the recorded/observational/instrumental records. Pollen grains, embedded in sedimentary sequences, are effective and reliable tools to understand the vegetational/ land cover changes of the area of study. When quantifying past land cover using modern pollen, vegetation data is of vital importance: it can directly provide the inputs needed by recent climate models that account for feedback from vegetation. Here, two case studies will be presented, the first a pollen record from the Eastern Ghats (Nallamalai hills), where we noted changes in the forest composition even if the total forest cover showed a slight increase in the top part of the core and the second, a quantitative pollen-based reconstruction from southeast India that demonstrated the long term persistence of the Tropical Dry Evergreen forest formations here and pointers to the greater resilience of some constituent species indicating the potential for conservation measures to be implemented here with urgency.

Conservation footprint of WWF-India in Eastern Ghats

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For more than three decades, the WWF India Hyderabad Office has worked on biodiversity conservation in the Eastern Ghats landscape. WWF India carried out a GIS-based vegetation mapping of the Eastern Ghats during 2005–2006. WWF Hyderabad conducted a thorough study to emphasise the importance of biodiversity in both the Araku Valley and the Nallamalla Hills. A total of 40 floral and 134 faunal species have been described from Nallamala, and 52 florals and 122 faunal species have been described from Araku valley. The study's outcome is a pictorial field guide developed in collaboration with Andhra Pradesh Tourism to promote biodiversity and provide identification hints for amateur naturalists. We are currently working on Tiger conservation in the Eastern Ghats landscape stretching from Amrabad Tiger Reserve in Telangana to Seshachalam Hills in Andhra Pradesh, focussing on improving the capacity of the Forest Department's frontline staff for effective management, as well as assessing the status of tigers, their prey, and their habitat. We also work with local communities in protected areas to provide them with a sustainable livelihood. We have also installed deep-well solar water pumps inside Tiger Reserves to avoid human-wildlife conflict during summers.

Pan-India to Tirupati: Understanding trends and patterns of squirrel occurrence

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Most of India's squirrels have been inadequately documented and monitored, which prevents us from understanding species declines and their causes. While knowledge of species occurrence is essential for modelling response to change, collecting primary data across large areas is challenging. We created a pan-India database for all 30 species of squirrels using primary and secondary sources, including citizen science portals and social media platforms, a novel source that is largely unexplored. Of 17,245 occurrence records collected, 62% of the data are from social media sources. However, there is a discrepancy in data across regions across India, with the Eastern Ghats being significantly underrepresented. Most data is recorded from urban areas, reflecting bias in data collection (concentrated human densities) or species response to urbanisation (increased squirrel densities). To examine the latter, we carried out an intensive field study to document the abundance of the three-striped palm squirrel (*Funambulus palmarum*) across an urbanisation gradient in Tirupati and surrounding forests. Preliminary analysis reveals that squirrels are more abundant in urban areas than in uninhabited regions. We explain this in response to vegetation parameters and human activity and discuss parallel patterns in exotic and invasive tree species.

Using citizen science to understand spatio-temporal patterns of occurrence of Danainae butterflies

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Knowing the patterns of occurrence of animals and plants over space and time is critical to understanding their ecology and identifying the need for conservation measures. In the case of Danainae butterflies (Family: Nymphalidae) in India, we only broadly know that some species migrate between specific habitats. For instance, a few species of Danainae butterflies (including the blue tigers *Tirumala limniace* and *T. septentrionis*) migrate longitudinally from the Western Ghats to the Eastern Ghats and the plains for breeding. However, there is limited information on their pattern of occurrence, especially from the Eastern Ghats and Plains. To better understand the spatial and temporal pattern of occurrence of Danainae butterflies, we used occurrence data from citizen scientists' contributions to iNaturalist. We will present preliminary findings that highlight shifts in the sites of occurrence of the butterflies over space and time. Finally, we will discuss the potential of citizen science to fill gaps in our understanding of the occurrence of Danainae species in the Eastern Ghats and Plains.

Influence of citizen science drives in documenting moth diversity of India

Harsha Kumar*, Suyash Sawant, Senan D'Souza,
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Moths of the order Lepidoptera are poorly documented in the Indian subcontinent and more so in the Eastern Ghats. While an estimated 10,000 species are believed to occur in India, research and naturalist contributions have documented only ~2000 species. This indicates the need for sustained, targeted documentation efforts with support from experts and curators. To understand the influence of the citizen science event, 'The National Moth Week', in promoting documentation of moth diversity, we use records posted on the iNaturalist platform between the years 2017 and 2020. We address if such targeted drives cause a spike in moth observations/number of species reported and its geographic spread. By doing this we actively identify metropolitan cities and states that could be targeted for future events. We ask if the majority of observations on iNaturalist are contributed by newcomers or experienced moth watchers during the moth week. Finally, we highlight the importance of such large-scale citizen science drives by showcasing work from Tirupati, Eastern Ghats that potentially includes several first records for the country.

Mosquito biodiversity in the Eastern Ghats of Southern Orissa and its implications for malarial incidence at various altitudes

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We revisit a three-year study by Major E. L. Perry titled 'Endemic Malaria of the Jeypore Hill Tracts of the Madras Presidency', concluded in 1913. Perry asks why there is such diversity in terms of the incidence of malaria across altitudes ranging from near absence in the Vizagapatam (Vishakapatnam) plains of present-day Andhra Pradesh to what he describes as the most malarious region of southern India, the Jeypore Hills of Orissa. Seeing as altitude is frequently associated with better health, such that hill stations have long been employed as sanitarium for such diseases as tuberculosis, Perry's observation appears to be at odds with such a stated colonial proposition. His work is located at various altitudes within the Eastern Ghats, across which marked differences characterise the diversity of mosquito species, particularly in the genus *Anopheles*. In dealing, however, with the relationship of temperature to, and the effect of received rainfall on the development of parasites in anophelines, in observing measures associated with endemic malaria, including spleen rate and parasite rate (presumably parasite load), the question of such development should not be considered in isolation. Instead, it should be treated in tandem with the equally important question of development and carriage in the human host, a relationship that bears exploration over a century after the study was conducted.

Rediscovery of the Critically Endangered Elvira Rat (*Cretnomys elvira*) in the Eastern Ghats

Brawin Kumar*,¹ Sanjay Molur,² Nivetha M¹ and Nandini Rajamani¹

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The Elvira rock rat *Cretnomys elvira* is a Critically Endangered species, and its known distribution is restricted to a single location in the Servarayan Hills of the Eastern Ghats, from where it was first described in 1929. The species has not been reported since its description despite survey efforts, and we report the first confirmed records of the species with morphometric and genetic evidence. We conducted a year-long live-trapping study across habitats and elevations in the Reserve Forests of the Servarayan Hills. Out of a total of 26 rock rat captures, five individuals were initially identified as *C. elvira* and 21 as *C. cutchicus* based on morphology. Geometric morphometric analysis of the skulls of both species showed separation along a few variables like length of snout and width of braincase. Molecular analysis showed that they were separated with high bootstrap support, and *C. elvira* is sister to *C. cutchicus*. We also noted that the locality of *C. elvira* is under severe conversion due to grazing, pollution, and conversion of forests to plantations and agricultural land. Conservation, management actions, population monitoring, surveys in adjacent hills, and restoration of degraded rocky habitats could contribute to the conservation of the rare Elvira rats.

Understanding avian diversity in the Eastern Ghats through detailed mist-net based resurveys, and citizen science data

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The rich avian diversity of the Eastern Ghats in Andhra Pradesh is yet to be explored completely. The last comprehensive avian survey of the Eastern Ghats between 1929 & 1936 by V.S La Personne recorded over 100 species of birds. From Palakonda hills, Cuddapah to Sankrametta in the Visakhapatnam ghats, the survey covered very few bird habitats. Between 1973 & 1983, Trevor Price & BNHS research in the Visakhapatnam Ghats discovered Tree Sparrow and Abbott's Babbler, species that are known from Himalayan foothills. In the past 90 years, there have been no other detailed & long term avian studies to understand the population & distributional changes of birds in the landscape. In 2019, our Citizen Science program initiated the Andhra Pradesh Birdwatchers group, a platform for bird watchers of Andhra Pradesh to interact and initiate collective efforts in exploring the avian diversity of the Eastern Ghats. Since then, 8 new bird records have been added to the checklist of birds of Andhra Pradesh by the members of the group. Our campus birdwatching community itself has recorded 218 species around the campus. We aim to do systematic mist-net based avian resurveys in the Eastern Ghats of Andhra Pradesh to assess the changes in avifaunal compositions in the region. Furthermore, through our outreach and capacity building, we are aiming to develop a community of citizen scientists to create baseline demographic data for multiple bird species across the Eastern Ghats. Combining the two methods, we expect to understand the distributional changes in forest avifauna and identify the areas of conservation importance for birds in the Eastern Ghats of Andhra Pradesh. This will also assist in the identification of long-term bird monitoring sites within the region.

Examining cryptic avian diversity in the Eastern Ghats through genetics

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Uncovering cryptic diversity (species overlooked owing to morphological similarities) is now gaining momentum in the study of evolution, biogeography, and contemporary ecology. The recognition of cryptic species also has important conservation implications, since conservation planning and management depend on accurate species-level taxonomy. The Eastern Ghats harbour remarkable avian diversity due to its affinity with the Himalayas and the Western Ghats. Much of the patterns in distribution of this diversity result from geographic heterogeneity and biogeographic barriers such as the Godavari, Mahanadi, and Cauvery rivers. The birds of Eastern Ghats have scant genetic data and the currently recognized subspecies can be indicators of hidden species. We plan to sample avifauna across the Eastern Ghats to reconstruct evolutionary relationships within a global phylogeny using a multi-gene framework. DNA sequencing would allow us to date the origins of these cryptic lineages, understand colonisation history, and elevate some of these subspecies to species level using integrative taxonomy. The discovery of cryptic diversity in the Eastern Ghats will add to the region's biodiversity, emphasising the need for systematic and extensive geographic sampling using multiline evidence (using genetics, behaviour, and morphology) to unravel true patterns in diversity.

Fauna of Seshachalam biosphere reserve, Eastern Ghats, Andhra Pradesh, India

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Seshachalam Biosphere Reserve was surveyed intensively, focusing on mammals (2012 to 2015 & 2019), herpetofauna (2012 to 2015 & 2019), avifauna (2011 to 2014) and butterflies (2012 to 2014). A total of 420 species were documented, consisting of 26 species of mammals, 215 species of avifauna, 83 species of herpetofauna and 96 species of butterflies. 26 species of mammals in 17 families were recorded including nine threatened species. A total of 215 species of avifauna in 45 families were recorded, with seven threatened species. 21 species of amphibians in five families, 25 species of lizards in six families, and 33 species of snakes belonging to 6 families, among which six species are venomous, were recorded. Among these are many news records of species, new locality records and first records. 96 species of butterflies were recorded in five families. The families Nymphalidae and Lycaenidae were most dominant with 32 species and 22 species, respectively, followed by Pieridae (19 species), Hesperidae (14 species) and Papilionidae (9 species). This study indicates that the area is rich and must contain many more species. We recommend further studies in the Eastern Ghats at the earliest possibility.

Creating an automated recorder detection framework for the Critically Endangered - Jerdon's Courser (*Rhinoptilus bitorquatus*)

Chiti Arvind¹, Viral Joshi¹, Russell Charif²,
Panchapakesan Jeganathan³, and VV Robin¹

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With the advent of Automated Recording Units, bioacoustic monitoring has become a popular conservation tool facilitating the collection of long-term data across large landscapes. These methods involve two main components - hardware for audio data acquisition and software for analysis. A species-specific framework is often essential for the acoustic monitoring of threatened species. The Jerdon's Courser (*Rhinoptilus bitorquatus*) is a Critically Endangered nocturnal bird endemic to a small region of the Eastern Ghats of India. Here we create a repeatable and scalable acoustic detection framework comparing different commonly available hardware and detection methods using existing software. We tested this protocol by collecting 24,349 hours of data over five months. We analysed the data with two commercially available sound analysis programmes, following an analysis pipeline created for this species. Although we did not detect vocalisations of Jerdon's courser, this study provides a framework using a combination of hardware and software for future research that other conservation practitioners can implement. We also highlight the role of vocal mimicry in detecting and identifying such threatened species. This detection framework can be scaled up and tailored to monitor other species.

Mammals in the Northern Eastern Ghats - the present and the future

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The Northern Eastern Ghats (NEG), spread across Andhra Pradesh and Odisha is a vast landscape dominated by stretches of tropical moist and dry deciduous forests. The region supports several rare, endemic, and threatened species of fauna and flora. Forests here have been historically affected by centuries of shifting cultivation, whereas irrigation projects, mining, and agriculture are causing land cover change in more recent times. Additionally, widespread hunting and wildlife trade is the major driver of wildlife population declines in the NEG, especially mammals. My long-term study of mammal diversity patterns and hunting practices in and around the Papikonda National Park in the NEG of Andhra Pradesh since 2014 has revealed a diverse assemblage of mammals, including 28 species photographed on camera traps. Interviews with local communities revealed that hunting in the region is driven by both commercial (ex: pangolin scales for trade) and personal (meat, recreation) reasons. A majority of respondents reported declines in wildlife populations over the previous decade, particularly of endangered species like the Indian pangolins. I discuss the habitat preferences of mammals in the NEG and how hunting and land cover changes are impacting them.

Connecting the dots: Panmictic population of Yellow-throated Bulbul across the Eastern Ghats

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Yellow-throated Bulbul is endemic to the Deccan Peninsula and is the only extant member of an ancient lineage which diverged ca. 8 mya from other bulbuls. It is restricted to patches of suitable habitats and is rare across its distribution range. The haplotype network shows that the species exists as a metapopulation, and its population shows signs of demographic expansion. It is possible that the species uses non-optimal dispersal corridors to move between patches of suitable habitats. Conservation efforts should focus on the landscape level. Currently, only 12% of the predicted suitable area is under protection. This species can be promoted as a flagship species for the conservation of the inland hillocks and the Eastern Ghats to leverage support from local communities and managers.

Organising Team

National Biodiversity Authority

Dr. Vinod B Mathur, Chairman

Dr. Justin Mohan, Secretary

Dr. KP Raghuraman, Technical Officer

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Dr. Nandini Rajamani, Assistant Professor

Mr. Raja Sekhar Bandi, Citizen Science Coordinator

Mr. Aravind PS, Researcher

Mr. Senan D'Souza, Researcher

Ms. Swati Udayraj, PhD Student

Dr. Brawin Kumar, Postdoctoral Scholar

Mr. Rakesh Muni, PhD Student

Ms. Archita Sharma, PhD Student

Ms. Harsha Jagadeesh, BSMS Student

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