



# SHOOTS AND LEAVES

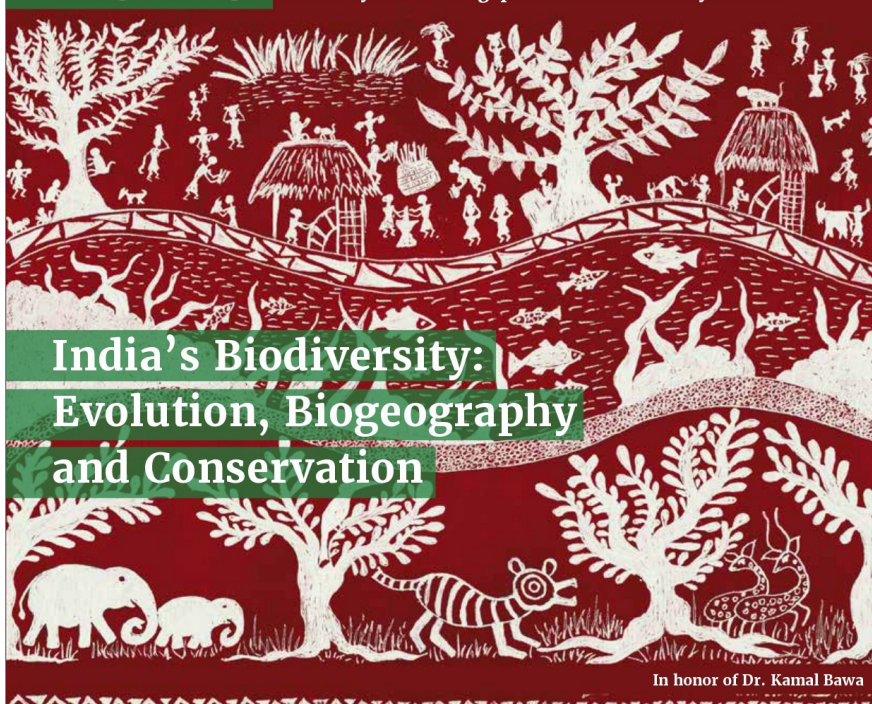
The special issue of the journal *Biotropica* - "Biodiversity of India: Evolution, biogeography, and conservation" is dedicated to Dr Kamal Bawa.

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**SPECIAL ISSUE** Edited by Asmita Sengupta and Selvadurai Dayanandan



In honor of Dr. Kamal Bawa



ASSOCIATION FOR  
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The special issue of the journal *Biotropica* titled "**Biodiversity of India: Evolution, biogeography, and conservation**" is dedicated to **Professor Kamal Bawa**. Professor Bawa is highly recognized for founding ATREE. Today, the organisation is rated among the world's top 20 environmental think-tanks and second among environmental think tanks in Asia.

As a means of honouring more than half a century of dedicated contributions of Professor Bawa to ecology, conservation and sustainability science in India and his service as the former President of the Association for Tropical Biology (1999–2001) and as the Honorary Fellow of the Association of Tropical Biology and Conservation (2004), it is befitting to dedicate this **Special Issue of Biotropica on India's biodiversity to Professor Bawa**.

The guest editors, **Dr Asmita Sengupta** and **Dr Selvadurai Dayanandan**, earnestly thank **Dr Jennifer S. Powers**, Editor-in-

Chief, and **Ms Wendy Martin**, Editorial Coordinator, Biotropica, for their immense effort, support and encouragement in bringing this issue together.

This Special Issue includes contributions from **59 authors** affiliated with **35 institutes** in **5 countries** and features **5 studies conducted by ATREE** researchers.

The cover of the Special Issue features original artwork by **Dibyadeep Chatterjee**.

[Access the Issue here](#)

## Papers featured in the Special Issue

### **Animal-mediated seed dispersal in India: Implications for conservation of India's biodiversity**

*By Asmita Sengupta*



Effective seed dispersal is critical for forest regeneration and restoration of degraded lands.

Our forests depend on animals for seed dispersal that aids regeneration. The loss of seed dispersing animals can have deleterious effects on tropical forests. In India, balancing the needs for biodiversity protection and development for the economy can be challenging. The loss of 'versatile' seed-dispersing animals could affect the regeneration of 259 plant species, and the loss of the 'critical' seed-dispersing animals will affect 120 plant species.

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*Erratum: The previous version was sent out with the wrong title for the article 'Habitat quality and edge area of fragments determine insect*



## **The flooded habitat adaptation, niche differentiation, and evolution of Myristicaceae trees in the Western Ghats biodiversity hotspot in India**

*ft. G. Ravikanth*



In lowland tropical rainforests, seasonal rains create 2 types of landscapes-  
Freshwater swamps (with floodwater)  
& Terra Firme (Without flood water)

A recent study conducted by a group of researchers including Dr G. Ravikanth from ATREE examines habitat adaptation, niche differentiation and evolution of plants from the Myristicaceae family. Myristicaceae (the family of nutmeg) is native to the Western Ghats and is generally seen in both freshwater swamps (flooded habitat) and terra firme forest (non-flooded habitat). The study finds that they have evolved from swampy lands to adapt to non-swampy habitats and have developed a tolerance to seasonal flooding.

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## **Insights into human-wildlife coexistence through temporal activity pattern overlaps in a neglected tropical forest in India**

*By Vikram Aditya and Thyagarajan Ganesh*



## Mammals change temporal activity patterns based on human activity in and around tropical forests, new study finds.

A new study by Vikram Aditya and T. Ganesh in the tropical forests of the Eastern Ghats shows a high overlap between human and mammal activity patterns, particularly with herbivorous species. This study provides the first insights into circadian temporal activity patterns of mammals in a protected area and its buffer in India's poorly known Eastern Ghats. The study discusses these findings in the context of hunting pressure by humans, protection status and its implications for mammal behaviour in the Eastern Ghats and tropical forests across India.

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## Native mammals disperse the highly invasive *Senna spectabilis* in the Western Ghats, India

*By N. R. Anoop, Sandeep Sen and Thyagarajan Ganesh*





Biological invasions are one of the major conservation challenges and Invasive plants often use animal vectors for colonization and spread.

Globally, invasive species are one of the major conservation challenges, threatening native biodiversity, causing extinctions and hampering natural evolutionary processes. When alien plants are dispersed by native animals, it will disrupt native mutualisms that evolved over evolutionary time. Jackals and wild boar disperse seeds of the invasive tree *Prosopis juliflora* in the Kachchh Desert of Gujarat. Native birds are the primary dispersers of *Lantana camara* in the Western Ghats. Sloth bears also disperse Lantana seeds in small quantities. Many of the protected areas in the Western Ghats are already threatened by the spread of various invasive alien plant species. An urgent survey in the Western Ghats to map areas where *Senna spectabilis* is present is required, and monitoring changes to curb the future spread is imperative.

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### **Habitat quality and edge area of fragments determine insect diversity in a heavily used landscape: Implications for forest landscape restoration**

*By Ravi Ramalingam and Priyadarsanan Dharma Rajan*



Insects drive several ecosystem processes such as nutrient cycling, decomposition, pollination, and seed dispersal.



Insects are vital for several ecosystem processes and they readily respond to any changes in the ecosystem. This study explores the ecological processes that determined the distributions of the epigeic insect (insects that dwell on the soil surface) communities among the degraded forest fragments of the Attappady Hills (Western Ghats, India), which are being restored. The boundaries of forest fragments usually have well-defined edges that form ecotones with adjoining habitats. The diversity of various insect taxonomic groups and functional feeding guilds was higher in smaller fragments when compared to larger fragments due to their relatively larger edges. Invasive yellow crazy ants, *Anoplolepis gracilipes*, infested smaller fragments where the quality of vegetation has degraded. So it is imperative to understand the responses of insects to ecological processes that drive their diversity and distribution in the forest fragments that are being restored. Such understanding will help to develop monitoring programs to assess the restoration progress.

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