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Lecture Series Environment & Biodiversity

Biodiversity Patterns in Kenya's Coastal Forests: Ecological Insights from a Global Hotspot

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Host: Univ.-Prof. Dr. Jan Christian Habel



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NLW-Faculty, Room 424, 2nd floor

Research focus:

Biodiversity Monitoring

Ecosystem Analysis & Conservation





Abstract

Kenya's coastal forests form part of the Eastern African Coastal Forests, one of the world's most biologically rich and threatened ecosystems. Recognized as a global biodiversity hotspot, these forests harbor remarkable levels of species richness and endemism despite their relatively small and fragmented distribution. Among these coastal forests are the culturally significant sacred Kaya forests, which hold immense cultural and ecological value for local communities. These forest ecosystems are vital not only for supporting diverse biological communities but also for providing ecosystem services that sustain local livelihoods. Despite their ecological and cultural significance, coastal and sacred Kaya forests face increasing pressures from land use change, resource extraction, and climate variability. Understanding biodiversity patterns of species and communities across Kenya's coastal forests is essential for designing strategies that balance development and conservation. Effective protection of biodiversity must therefore be guided by science-based conservation approaches that support sustainable management, maintain ecological functions, enhance ecosystem resilience, and benefit both people and nature. My research in Kenya's coastal and sacred Kaya forests contributes to this effort by integrating vegetation and butterfly surveys with socio-ecological analyses, land-use and land-cover change assessments, evolutionary approaches, and long-term biodiversity monitoring. Together, these methods provide a comprehensive understanding of ecological dynamics and human-nature interactions in these landscapes. Integrating biodiversity science with local cultural institutions offers a promising pathway for strengthening conservation outcomes. This presentation highlights key findings from this work and their implications for biodiversity conservation, policy engagement, and the ongoing challenge of balancing economic development with ecosystem protection.

