

**RESEARCH ARTICLE**

# Ethnobotanical knowledge against the combined biodiversity, poverty and climate crisis: A case study from a Karen community in Northern Thailand

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**Societal Impact Statement**

Global biodiversity is eroding at alarming rates due to anthropogenic factors, such as climate change and unsustainable land use management. These interrelated challenges often push forest ecosystems to their limits, leading many species to disappear before their characteristics and potential are explored. As a result, indigenous rural communities inhabiting the world's biodiversity hotspots are losing a vital resource that supports their subsistence and livelihoods against persistent poverty. This research documents traditional ecological knowledge of a Karen community inside the Doi Inthanon National Park, Northern Thailand, reporting ethnobotanical uses of 125 plant taxa. It provides a ranking of culturally important trees that can inform the selection of framework species for ecosystem restoration and sustainable development in the region's montane forests.

**Summary**

- Climate change, population growth and persistent poverty are applying pressure to the world's most fragile ecosystems and biodiversity hotspots in unprecedented ways. There is an urgent need to document species that provide important ecological services and contribute to overall human quality of life.
- Participatory rural appraisal tools and collection of herbarium specimens were used to elicit ethnobotanical knowledge of an ethnic community inside the mountain forest of Northern Thailand. Statistical analysis was performed on the basis of quantitative indices to rank the cultural significance of the reported species in a Karen community inside Doi Inthanon National Park, Northern Thailand.
- This article presents an ethnobotanical inventory of 125 plants, including data on important botanical families, use categories and useful plant parts. A prioritisation of 30 culturally important tree species is attempted on the basis of four quantitative indices.

In Memory of Dr. J.F. Maxwell

Dr. J.F. Maxwell, a valued member of the botanical community of Thailand and Southeast Asia, provided valuable mentoring and reviews of this work. He inspired commitment, attention to detail and a true dedication to the conservation of Thailand's most important forest ecosystems, and he is deeply missed.

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- Most of the reported plants are neglected and underutilised in need of further research and development for the diversification of agriculture, diets, livelihoods and landscapes. The integration of cultural criteria in the selection of framework species for ecosystem restoration embeds local community needs in conservation efforts, increasing their potential for success and fostering an integrated approach to sustainable development.

**KEYWORDS**

agricultural diversification, biodiversity conservation, ecosystem restoration, neglected and underutilised species, sustainable rural development, traditional ecological knowledge