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## Grasslands in shambles as plantations shroud them

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Bengaluru Feb 1, (Research Matters):

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Grasslands in shambles as plantations shroud them

The Western Ghats, renowned for its mesmerising beauty, lofty mountains, dense forests and rolling grasslands, is losing all of it in the past few years. Multiple studies have shown the changes in the ecosystem resulting from various reasons and have linked them to devastating consequences like landslides and floods. In a recent [study](https://www.sciencedirect.com/science/article/pii/S0006320718312229?dgcid=author), researchers from the Indian Institute of Science Education and Research (IISER), Tirupati, Ashoka Trust for Research in Ecology and the Environment (ATREE), Bengaluru, Hume Centre for Ecology and Wildlife Biology, Kerala and The Gandhigram Rural Institute, Tamil Nadu, have studied the factors responsible for the deleterious effects on the extent of the Shola grasslands.

Grasslands have a complicated past in India. They have been recognised as 'wastelands' through most of history, and have been given away for agriculture and other developmental projects without realising the uniqueness and importance of this ecosystem. The Shola grasslands in the Western Ghats are a unique ecosystem of rolling grasslands at high altitudes surrounded by dense humid forests. Many of the populations that inhabit the high altitude grasslands are separated from other populations and hence are of direct descent from their ancestors without much genetic mixing as is seen in populations elsewhere.

In the current study, published in the journal *Biological Conservation*, the researchers have studied satellite images from the years 1973, 1995, 2003 and 2017 and analysed how the changes in the land use have affected the Shola grasslands south of the Baba Budangiri hills of the Western Ghats. "This is the first study conducted across the entire extent of the shola habitat and elucidates the dramatic loss of high-elevation grasslands in the Western Ghats", says Dr Milind Buyan, a researcher from ATREE and an author of the study. The researchers also collected field data by visiting 840 locations across the Western Ghats.

The researchers found that about 60% of the landscape in the Western Ghats, except the Shola forests, had transformed in the last 45 years. Since most conservation efforts in the region are focused on the shola forests, they remained unchanged during this period. A huge chunk of 516 km<sup>2</sup> of the grasslands have been lost since 1973, and 88% of this loss has been in the mountain tops of Nilgiris and the Annamalai-Palani ranges of Tamil Nadu.

Plantations with exotic trees, like eucalyptus, acacia and pine, grown for timber, were found to be the leading factor resulting in the decline of the Shola grasslands. Although active planting of such trees has been prohibited in this region since 1996, the researchers found that even after almost a quarter of a century, these trees continued to spread within the landscape, altering it. The other threats in the region included agriculture, tea plantations, cane plantations and human settlements. On the positive side, they found that smaller mountains tops and the Munnar region have remained stable over these 45 years.

Talking about the need to conserve these shrinking grasslands, the researchers call for action to restore them. Most of the conservation efforts are still focused on the Shola forests; but the grasslands face a more severe threat, say the researchers. However, this does not mean mindlessly planting more trees in regions that are not intended to be forests! We need to understand the complexities of ecosystems like grasslands or 'wastelands' that seem to be devoid of life, but still play a significant role. Replacing them with habitats that look more 'productive', like forests, will lead to more harm than good, caution the researchers.

*"Conservation issues, especially in the light of recent Kerala floods, and various ecological reports on the Western Ghats, are central in the minds of people. The extensive loss to natural habitats must be reversed through scientifically sound restoration measures", stresses Mr. C. K. Vishnudas of Hume Centre for Ecology.*

The study highlights the plight of Shola grasslands that have a unique place in the ecosystem of one of the biodiversity hotspots of the world. "Given the rapid loss of grasslands to invading exotic timber plantations, especially wattles, we hope this study serves as a baseline for future monitoring and restoration efforts", says Dr Bunyan, talking about the importance of this study.

*"The loss of habitats impact wild birds and mammals, and also affects human livelihoods. We hope that the current ongoing court case in the Tamil Nadu High Court takes note of these findings and prioritise grassland conservation", signs off Dr V. V. Robin of IISER, Tirupati.*

**Source:** [Invasion compounds an ecosystem-wide loss to afforestation in the tropical grasslands of the Shola Sky Islands](https://www.sciencedirect.com/science/article/pii/S0006320718312229?dgcid=author)  
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