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Ecoregion level niche specific habitat prediction of threatened *Syzygium caryophyllatum* (Myrtaceae) for reintroduction and ecorestoration

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Abstract

Syzygium caryophyllatum (L.) Alston is a medium-sized threatened tree that mainly occupies the low-elevation evergreen patches of the Western Ghats (India) - Sri Lanka biodiversity hotspot. The present study predicts the potential habitats of *Syzygium caryophyllatum* at the ecoregion level for prioritising its conservation and restoration area. The bioclimatic species distribution modelling (SDM) using 19 bioclimatic parameters of World Clim used here to elucidate fundamental niche of the species. The standardised vegetation and landuse layer used in this model for the prediction of potential niche of the species incorporating biotic factors. The incorporation of standardised vegetation layer for the inclusion of Eltonian factors along with MaxEnt based Ecological Niche Modelling helped to refine its predicted area from 10,824 km^2 to 8,595 km^2 within the Western Ghats. The model adopted with the MaxEnt SDM with additional biotic layers to better accommodate the Grinnellian and Eltonian niche factors. The ecoregion level prediction for the potential habitat of the threatened tree species provides adequate information for the niche specific conservation and ecorestoration planning ensuring ecosystem-based approach (EbA).

Keywords

Conservation, Distribution, MaxEnt, *Syzygium*, Vulnerable, Western Ghats