Diversity, abundance, and structure of tree communities in the Uluguru forests in the Morogoro region, Tanzania

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Abstract

Uluguru forests are globally recognized as important biodiversity hotspots, but anthropogenic pressure threatens their value. This study examined species diversity, abundance, and structure of trees in the Uluguru forests. All trees of diameter at breast height (DBH) ≥ 10 cm were inventoried in seven forests ranging from 3 to 995 ha in area. A total of 900 stems, 101 species and 34 families were inventoried. Fabaceae was the most speciose family. Ehretia amoena Klotzsch was the most abundant species with relative abundance of 9.22 %. The forests differed significantly in species richness (26–93 species ha−1), tree density (85–390 stems ha−1), basal area (3–24 m2 ha−1) and Shannon-Wiener diversity (2.50–4.02). Forest area was significantly and positively correlated with species richness (r = 0.92) and species diversity (r = 0.95). Tree density showed significant positive correlation with species richness (r = 0.80) and basal area (r = 0.85). Milawilila and Nemele forests had highest floristic similarity (0.55) followed by Kimboza and Kilengwe (0.54) while the rest had similarity coefficients of less than 0.50. Despite legislative protection, many forests remain at risk and therefore the possibility to conserve highly valuable tree species via enhanced protection or cultivation must be considered.

Keywords: Eastern arc Biodiversity Disturbance Hotspots Similarity