Richness of species and growth-forms within sclerophyll and mesophyll vegetation in eastern Australia

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Abstract

The patterns in total species richness and in the richness of the dominant growth-forms of vegetation communities of coastal sclerophyll and mesophyll vegetation in eastern Australia are examined. Plant species richness data were obtained from two 500 m^2 quadrats from 50 sites within a single geographic region north of Sydney, New South Wales. Concentrically-nested sub-quadrats within each quadrat enabled the determination of species-area relationships for total species richness and its components. Three growth-forms were examined: trees, shrubs and ground cover, and patterns in the richness of these components were compared to those exhibited by total species richness. Total species richness was higher in sclerophyll communities on Hawkesbury Sandstone soils than in adjacent mesophyll communties on Narrabeen shales and sandstones. Significant patterns in total species richness within the two soil types were also found. Shrub and ground cover species richness showed strong correlations with total species richness with higher richness in the sclerophyll communities. However, tree species richness contributed little to the patterns in total species richness. The results of this study suggest that differential patterns in the components of total species richness must be taken into account for effective modelling of natural areas based on species richness and diversity parameters.

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