Biogeography, richness and endemism in non-resprouting and mallee post-fire response types in Eucalyptus

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Abstract

Eucalypt species show a variety of strategies for population persistence through fire and other disturbances. These range from death of individuals with population replacement through post-fire seedling recruitment, to species in which individuals survive fire via resprouting from a variety of organs. We used all records of *Eucalyptus* from selected bioregions across southern Australia held in the Atlas of Living Australia database to examine spatial patterns of richness, endemism and composition in two distinct post-fire response types: mallee (resprout from a lignotuber) and non-resprouting (fire-killed). The distribution and evolution of eucalypt diversity in mallee and non-resprouting post-fire response types is best understood in terms of a centre of species richness and endemism on the south coast of Western Australia with richness and endemism then declining to the north and east. Spatial analysis of mallee species composition showed four continental-scale groupings; two unique to south-western Australia, a Great Victoria Desert-centred group and a south-east Australian group with a clear biogeographical connection across the coastal Nullarbor gap.

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