

Empirical models of habitat resources provided by revegetation activities

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Rural landscapes in southern Australia are in need of massive revegetation investments to combat environmental degradation. Planning restoration activities requires projections of the expected ecological outcomes over decades to centuries.

Models for optimal landscape reconstruction based upon mature vegetation will always overestimate potential benefits to species responsive to landscape structure, like birds, because of time lags in provision of habitat resources. Similarly, basing planning on recent plantings will underestimate the benefits because many important habitat resources, such as tree hollows, will not have developed. By modelling the process of provision of habitat resources, integrated with bird resource-requirement models, we can project future biodiversity benefits from revegetation activities.

Data from a wide age range of plantings are presented, with emphasis on habitat resources produced by trees for birds. Key outcomes are: planting at high density leads to reduced diameter growth rates, and stymies development of spreading tree crowns consisting of large boughs, bearing hollows and contributing fallen timber. Self thinning proceeds too slowly to offset high density planting, and leads to a need for costly management thinning. Trajectories of habitat resources suggest that protection of the scattered trees is vital because most mature trees are of this nature, as is facilitation of natural regeneration of tree populations by other actions.

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