

***Acacia enterocarpa* session: RETHINKING LANDSCAPE RESTORATION: SEED PRODUCTION, PROVENANCE,  
CONSERVATION PLANNING**

***Dr Melissa Millar (Research Scientist, Department of Parks and Wildlife WA), David Coates  
(Department of Parks and Wildlife WA), Margaret Byrne (Department of Parks and Wildlife WA)  
& Dale Roberts (University of Western Australia)***

An integrated approach to designing provenancing guidelines illustrated for landscape restoration in the Midwest of Western Australia.

Restoration ecology science has traditionally recognised the importance of compositional diversity in vegetation at the species and genetic level. More recently there has been increased acknowledgement of the need to match not only current but also potential future ecogeographic variables at seed source and restoration sites and of the role evolutionary processes such as gene flow play in maintaining the long term viability and persistence of restored populations and their functional integration into the greater landscape. This has led to descriptions of a plethora of provenancing approaches that expand upon the classical local provenancing paradigm. Despite this, there are few practical recommendations on how to utilise empirical knowledge to design effective seed sourcing regimes that achieve successful long term restoration. Here we describe an integrated method that considers the independent evolution and distribution of genetically divergent lineages, more contemporary patterns of genetic structure and gene flow, ecogeographic variables, and life history traits that affect population demographics and pollen and seed dispersal. The method utilises simulation modelling to indicate how various seed sourcing and establishment regimes, including the number of founding individuals, perform in the initial capture and maintenance of genetic diversity in restoration populations over future generations. We illustrate the method for provenancing of source material for restoration activities in the Midwest of Western Australia, an area where significant investment will be made in post-mining restoration over the coming decades.

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## 11th Australasian Plant Conservation Conference

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