

## **Conservation genetics of threatened species in the diverse flora of Western Australia**

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The Western Australian flora has many species, including a high proportion that are rare and threatened, with geographically restricted distributions and distinct evolutionary lineages that may be relictual or recently evolved. The genetic complexity of the flora is reflected in disjunct distributions and fragmentation within the landscape despite a relatively stable evolutionary history. Assessment of the level and structure of genetic diversity within and among populations of threatened species enables identification of management units and prioritisation of populations and species for conservation management. Clonality within species makes assessment of census size of populations difficult and genetic analysis can assist in identifying the size and spatial pattern of clonal patches. The conservation status of rare species suspected to be of hybrid origin requires further evaluation according to additional criteria and confirmation of recent hybrid origin of these species facilitates effective identification of their conservation status. Populations of threatened species are often small and isolated and may be subject to increased inbreeding and genetic drift. Knowledge of mating system variation, inbreeding, gene flow among populations and levels of genetic diversity is important in designing conservation strategies that maintain effective breeding systems to support population persistence. To date 48 threatened taxa have been investigated using a range of genetic approaches. Examples will be presented of how evaluation of genetic factors in threatened species have provided a context for understanding rarity in the diverse Western Australian flora, and facilitated development of management strategies for conservation of rare and threatened species.

# Threatened Species Research Forum



Western Australian Ecology Centre

9<sup>th</sup> July 2010

A Review of WA Government Research into Threatened Species