Advances in plant conservation biology:

Implications for flora management and restoration

Symposium program and abstracts

Perth, Western Australia
25-27 October 2005

RDENS
HORITY

Advances in plant conservation biology
Symposium, Perth

THE INFLUENCE OF THE PAST IN THE PRESENT - PHYLOGEOGRAPHY IN THE ANCIENT AUSTRALIAN LANDSCAPE

Margaret Byrne

Science Division, Department of Conservation and Land Management, Locked Bag 104, Bentley Delivery Centre, Western Australia, Australia 6983

Australia has an ancient landscape that has had a relatively stable geological history with no major glaciation events, although it did experience climatic oscillations during the Pleistocene. Current distributions and patterns of diversity and endemism are related to the impacts of historical processes. Phylogeography uses the geographic distribution of phylogenetic lineages to give insight into the influence of historical processes on population structure. Comparative phylogeographic studies can highlight major influences of historical processes enabling patterns of biodiversity to be understood in a historical context providing greater predictive power for conservation management. Comparative phylogeographical analysis of widespread species in the south of Western Australia has inferred past fragmentation as the most likely cause of the patterns of population structure present today. This is consistent with biogeographical evidence for climatic oscillations during the Pleistocene due to cyclic contraction and expansion of the mesic and arid zones leading to fragmentation in the transition area between these zones. Significant fragmentation events can still be detected in maternal lineages even after secondary expansion occurs.