Patterns of pollination in woody plants in fragmented landscapes of south-west Western Australia

Margaret Byrne[1], Jane Sampson[1], Tanya Llorens[1], David Coates[1], Colin Yates[1], Neil Gibson[1]
[1]Science Division, Department of Environment and Conservation

Background/question/methods: The impact of fragmentation on patterns of pollination in widespread, continuous species is generally considered to be negative but the impact on pollination in species with naturally patchy populations is less clear. Pollination within and between populations is strongly influenced by pollinator behaviour that in turn is influenced by landscape and population features. Studies of pollen dispersal in woody plants in south-west Western Australia provide insight into aspects of pollination and mating systems in species that have naturally patchy distributions.

Results/conclusions: Pollen dispersal among populations is generally extensive and maintains genetic connectivity in fragmented landscapes with small remnant populations and paddock trees making an important contribution to genetic connectivity. While outcrossing rates appear to be maintained, the patterns of pollination among plants in small degraded population remnants compared to larger, intact remnants show changed pollinator behaviour leading to fewer mates contributing to seed crops and greater biparental inbreeding. In particular, shape and density appear to be strong influences on patterns of pollination within populations. Knowledge of the effects of population variables on patterns of pollination is important for application of conservation strategies in fragmented landscapes and for the design and implementation of restoration programs.

Margaret Byrne undertakes research in plant genetics for conservation strategies for rare and threatened plants and to inform biodiversity conservation at landscape scales in relation to pollination, remnant viability, restoration, refugia, phylogeography and adaptation to climate change.

Conference Handbook

ECOLOGICAL SOCIETY OF AUSTRALIA
2012 Annual Conference

Ecology: Fundamental Science of the Biosphere

3-7 December 2012

The Sebel Albert Park
Melbourne, Victoria