# Granite outcrops as ancient islands in old landscapes: evidence from the phylogeography and population genetics of *Eucalyptus caesia* (Myrtaceae) in Western Australia

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Granite outcrops represent an isolated island habitat and in ancient landscapes may harbour species with complex evolutionary histories. Phylogenetic analysis of these species may reveal the influences of evolutionary processes over long time-frames. Phylogenetic relationships from chloroplast and nuclear genome analysis were investigated in *Eucalyptus caesia*, a bird-pollinated mallee endemic to granite outcrops in the Southwestern Australian Floristic Region. The study revealed high population and haplotype divergence suggesting restriction to the specific habitat of granite outcrops over long time frames with genetic drift as the most significant evolutionary force. The hypothesis of derivation of ssp. *magna* from ssp. *caesia* was not supported by the pattern of diversity in either the chloroplast or the nuclear genome and the two subspecies were not monophyletic. *Eucalyptus caesia* displays significant clonality yet little evidence of inbreeding depression, suggesting deleterious mutations causing inbreeding depression have been purged.