

## 5. POSTER FOR COMPETITION

### **Sex on the Rocks: Recruitment Genetics of a Tree Endemic on Granite Outcrops**

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In south-west Australia, granite outcrops support hyper-diverse plant communities, some species of which persist as small, genetically insular populations for extremely long periods. Due to the fire-sensitivity and conservation status of some granite endemics, experimental burns are inappropriate. Thus, opportunities to study the impact of fire on plant population genetics seldom arise. Following a wildfire in a stand of the granite-endemic, lignotuberous tree *Eucalyptus caesia* at Boyagin Reserve, we surveyed genetic diversity, growth and survival, and parentage of seedlings. The entire adult stand ( $n = 180$ ) plus all seedlings located ( $n = 115$ ) were genotyped with 15 microsatellite loci. There was low heterozygosity and high fixation in seedlings compared to adults. Seedling mortality was high, with 32 seedlings still alive two years after the fire. Our data did not support expectations of post-germination selection against homozygous progeny. Based on height measurements, seedlings resulting from self-pollination ( $n = 19$ ) could not be distinguished from outcrossed seedlings ( $n = 69$ ). Whether these results can be explained by variability in seedling microsites, or purging of deleterious alleles, requires further investigation. Parentage analysis revealed limited seed dispersal ( $14.6 \pm 3.8$  m). By comparison, pollen movement was more extensive ( $67.8 \pm 9.4$  m), yet still restricted within the stand. Genetic mixing through wide pollen dispersal within stands, and extreme longevity of adults via lignotuber resprouting could retard extirpation in *E. caesia*. However, poor understanding of recruitment over the long-term, and lack of population age-structure data, represents a significant challenge to appropriate conservation management.



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