

Parental and Consensus Linkage Maps of *Eucalyptus globulus* Using AFLP and Microsatellite Markers

By J. S. FREEMAN, B. M. POTTS, M. SHEPHERD and R. E. VAILLANC

Silvae Genetica 55 (2006) 4/5, p. 202-217

Abstract

Parental and consensus maps were constructed in an F₂ inter-provenance cross of *Eucalyptus globulus*, using amplified fragment length polymorphism (AFLP) and microsatellite (or simple sequence repeats [SSR]) markers. The female map had 12 linkage groups and 118 markers, comprising 33 SSR and 85 AFLP loci. The male map had 14 linkage groups and 130 markers comprising 36 SSR and 94 AFLP loci. The integrated map featured 10 linkage groups and 165 markers, including 33 SSR and 132 AFLP loci, a small 11th group was identified in the male parent. Moderate segregation distortion was detected, concentrated in gender specific groups. The strongest distortion was detected in the female parent for which causal mechanisms are discussed. The inclusion of SSR markers previously mapped in several different eucalypt species within the subgenus *Symphyomyrtus* (*E. globulus*, *E. camaldulensis*, and predominantly *E. grandis* and *E. urophylla*), allowed comparison of linkage groups across species and demonstrated that linkage orders previously reported in *E. globulus*, *E. grandis* and *E. urophylla* were largely conserved.

Key words: Linkage map, *Eucalyptus globulus*, SSR, AFLP, comparative mapping.