

Mating Patterns and Pollen Dispersal in Knobcone Pine.

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Mating system and effective pollen dispersal in a natural stand of knobcone pine (Pinus attenuata Lemmon.) were studied using eleven isozyme loci. Analyses were performed by fitting neighborhood and mixed-mating models to multilocus genotypic arrays of offspring from four mother trees. Average individual tree outcrossing rates were estimated to be 0.984 and 0.964 for the respective models. The proportion of offspring sired by males outside the neighborhood of each mother tree (i.e., outside a radius of 15 m) was 0.55. Thus about 43% of the mating were due to outcrossing with nearby males (about 75 within each neighborhood). The neighborhood model makes it possible to evaluate the importance of direction and distance to female parents, as well as relative fecundity, on the mating success of paternal trees.