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PLANT MATING SYSTEMS IN CONSERVATION AND ASSESSING POPULATION PERSISTENCE

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The persistence of plant populations in highly disturbed and fragmented landscapes depends on a number of key factors such as population size, isolation and habitat disturbance. These factors may significantly influence the mating system of these populations by affecting pollinator availability and behaviour, the ability to find mates in self-incompatible species, inbreeding in self-compatible species and the size of the pollen pool. These in turn might be expected to influence key variables critical for population persistence such as seed production, seed germination and seedling fitness. The investigation of mating system variation in plant populations can therefore provide valuable insight into the ability of plant populations to persist following significant habitat loss. Here we investigate mating system variation in five rare species: *Banksia cuneata, Lambertia orbifolia* (Proteaceae); *Verticordia fimbrilepis, Eucalyptus rameliana* (Myrtaceae); *Acacia sciophanes* (Mimosaceae) and two common species *Calothamnus quadrifidus* (Myrtaceae) and *Acacia anfractuosa*. All seven species are animal pollinated with mixed mating systems. Population variation in mating system parameters was investigated in relation to population size, isolation and habitat disturbance. We show that although the mating system will vary depending upon pollination biology and life -history, as populations get smaller, more isolated and habitat disturbance increases there is a trend towards increased inbreeding and smaller effective sizes of paternal pollen pools. These findings will be discussed in relation to the conservation and management of rare and threatened species and plant populations of more common species in vegetation remnants in fragmented landscapes.