Very Low Fruit : Flower Ratios in *Grevillea* (Proteaceae) are Independent of Breeding System

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Abstract

Members of the family Proteaceae have extremely low mature fruit : flower (FR : FL) ratios (range 0.001–0.163) compared with other temperate, hermaphroditic, woody perennials. Sutherland's (1986) survey of FR : FL ratios indicated that compatibility was an important factor explaining levels of fruit set. The role of compatibility in regulating FR : FL ratios was tested in five closely related species of *Grevillea* (Proteaceae). Species-specific compatibility was compared using the self-compatibility index (SI = ratio of selfed fruit set to crossed fruit set) calculated at fruit initiation to minimise the confounding effect of other post-fertilisation fruit losses, such as inbreeding depression and pre-dispersal predation. Fruit : flower ratios at initiation ranged from 0.041–0.249, and at maturity 0.015–0.096. *Grevillea* species showed highly variable breeding systems: *G. linearifolia* was self-incompatible (SI = 0.003), *G. sphacelata*, *G. mucronulata*, and *G. oleoides* were partially self-compatible (SI = 0.07–0.28) and *G. longifolia* was self-compatible (SI = 0.61). Intrapopulation variability in the level of self-incompatibility was high in all species but *G. linearifolia*. The correlation between SI and FR : FL ratios was non-significant, indicating that compatibility has a minimal effect on fruit set in the *Grevillea* species studied, and that these data, together with other data on proteaceous species do not support trends observed in Sutherland's survey. Low FR : FL ratios resulted from of a combination of pollen limitation, and high levels of flower and fruit predation.

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