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# Pollination of Rafflesiaceae – superlatives in size, eccentric life-cycle, and deception

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## Résumé

Two decades of research in N and S Thailand, W Sumatra and N Borneo revealed that holoparasitic *Rafflesia kerrii* Meijer, *Rhizanthus deceptor* Bänziger & Hansen, *R. infanticida* Bänziger & Hansen, *R. lowii* (Beccari) Harms, *Sapria himalayana* Griffith, *S. poilanei* (Gagnepain) Bänziger & Hansen are pollinated by blow flies (Calliphoridae): *R. kerrii* mainly by *Chrysomya* spp.; *R. deceptor* by *Hypopygiopsis infumata*; *R. infanticida* and *R. lowii* by *Chrysomya*, *Lucilia* and *Hemipyrellia* spp.; *S. himalayana* by *L. porphyrina*; *S. poilanei* by *L. papuensis*. However, *S. ram* Bänziger & Hansen is pollinated by 11 species of flesh flies (Sarcophagidae). Rafflesiaceae have unisexual (rarely bisexual) flowers. Pollen is exuded as a suspension which is acquired by the flies on their thorax back. There it solidifies to remain firmly attached to the flies which can live for several weeks and are strong fliers. When entering a female flower, the pollen clump is re-liquefied on contact with the stigmatic fascia awash with fluid. Solid pollen retains sufficient viability for up to three weeks to produce mature fruits and seeds, allowing reproduction in flowers widely separated in space and blooming time, most important for the survival of such rare flowers. No reward is offered by any species of the family, with a partial exception in *Rhizanthus* where nectar is secreted near the margin of the flower, without directly eliciting pollination. Whereas food-deception may act in the very few cases where male flies are involved (except in *S. poilanei* where male flies are less rare), in female flies brood-site deception acts although no parturition ensues except in *R. infanticida*. By its odour and fur-like tangle of hairs, *R. infanticida* fakes a mammalian carcass, misleading pollinating flies into laying hundreds of eggs, arguably the world's most murderous flower since the pollinator's progeny is doomed in the lack of food.

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