

## Differential Visitation of *Catasetum* Orchid Male and Female Flowers

In June-July 1979, in Santa Rosa National Park, Costa Rica, a *Catasetum maculatum* orchid produced two successive five-flowered female inflorescences and attracted at least 407 male *Eulaema polychroma* over 59 flower days; only two of these bees carried pollinaria and they pollinated three of the 10 flowers (Janzen 1981). In June 1980, the same plant produced a six-flowered female inflorescence and attracted about the same number of male *E. polychroma* per day as in 1979, but none carried pollinaria. Likewise in June 1980, a heavily shaded *Catasetum maculatum* orchid produced a five-flowered male inflorescence about 150 m north of the other orchid. The flowers began producing odors about 0700. By one-half hour later, four of the flowers had their pollinaria removed by the first four bees (*E. polychroma*) to arrive, and by 15 minutes after that the last flower lost its pollinaria to the fifth *E. polychroma*. Each bee spent 30 to 90 seconds at the flower. Flowers stopped odor production as soon as the pollinaria were removed, as evidenced by the fact that I could no longer smell them individually, and incoming bees made no mistake as to entering a flower that had lost its pollinaria. These five flowers were the only flowers made by this plant in 1980 (in 1979 it made two bud-bearing inflorescences, both of which were eaten by herbivores).

It appears that a *C. maculatum* male orchid can be so specialized that its entire active act of pollen donation can take as little as 45 minutes in a year. It attracts exactly the number of animals required to carry its  $n$  pollinaria. This incredibly brief and precise courtship act is complemented by a female flower-bearing plant with flowers that are among the longest-lived in the habitat, that are visited by animals with an extremely high visitor/pollinator ratio, and that have the lowest ratio of paternal parents per seed of any plant in the habitat (*C. maculatum* has the most seed-rich fruit in Santa Rosa National Park). I suspect that virtually every bee that leaves a male flower with a pollinarium pollinates a flower; if this is so, a male *C. maculatum* has the highest pollen-donation success rate of any obligatorily outcrossing plant known.

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JANZEN, D. H. 1981. Visitor and pollinator abundance at two Costa Rican female *Catasetum* orchid inflorescences. *Oikos* 36: 177-183.

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