

Observations on the Pollination of *Leporella fimbriata* (Lindl.) A.S. George

by Rod Peakall

Abstract: Observations on the pollination of *Leporella fimbriata* were conducted in the Darling Range, east of Perth. *Leporella* is pollinated by winged male ants (*Myrmecia* sp.) which are attracted by pheromone like substances emitted from the glandular petal tips, form and coloration of the labellum is a probable visual mimic of the queen ant.

Pollination was observed while investigating a large colony of *Leporella fimbriata* on the warm, cloudless 20°C afternoon of May 3, 1984. A small flying ant with yellow pollinia on its thorax was seen flying several centimeters above the ground, but below the height of the flowers. Flight was momentarily interrupted by a brief visit to plant no. 1 before alighting on the stem of plant no. 2. The insect immediately crawled up the stem, past the first flower and aligned itself along the width of the labellum of the second flower. It then curled its abdomen into a copulatory position, making probing movements along the side edge of the labellum. In this position, the thorax with attached pollinia was directly below the stigma. At this stage the insect was captured as a specimen for identification. This particular flower had been examined previously and found to be freshly pollinated; the observed visit therefore being at least the second visit of a pollinator to that flower.

A second ant was found on another flower in a position similar to that described above. Pollinia on the ant's thorax was in direct contact with the sticky stigma. The ant remained in this position for approximately 3 minutes making frequent probing copulatory movements of its curled abdomen inside the unfringed side edge of the labellum. Departure of the insect from the labellum was preceded by a slight twist which enhanced contact of the thorax with the pollinia in the anther. This procedure resulted in the removal of pollinia lobes from one side of the anther. The ant then moved to the back of the flower and remained on the upright sepal and petals for 2 or 3 minutes before departing the plant (plant no. 3).

The next 10 minutes the insect rested on nearby vegetation; little activity was observed before it flew to the ground and was momentarily lost. The ant was eventually re-located on the ground before it flew to bait flowers previously picked and placed in a vial. The insect circled the bait flowers at radii of 30 to 40 centimeters several times, then zig-zagged upwind and alighted on one of the bait flower stems (plant no. 4). The same behaviour as previously described was observed with the ant staying on the labellum for about 4 minutes. Again, it exhibited the same twisting movement

from the labellum, removing pollinia lobes from one side of the anther. Some time was again spent on the upright sepal and petals before the ant was captured as a second specimen. Examination of the previously unpollinated bait flower revealed pollen on the stigma.

A short time later a second ant was found on the same flower of plant no. 3 in which pollination has been described. After pollination the ant remained on the petals and dorsal sepal for over 10 minutes before flying some 3 metres to the main concentration of *Leporella* flowers. The ant crawled and flew amongst the colony of flowers before circling plant no. 5. The zig-zagging upwind flight pattern was observed followed by a particularly vigorous pollination event in which the labellum was moved laterally from side to side. This event only lasted for 3 minutes before the ant moved from the labellum to the back of the flower for a further 3 or 4 minutes. Pollination was observed at this same flower a second time, however, pollination was again a relatively passive event.



Male *Myrmecia* sp. pollinating *Leporella fimbriata*
Photographed by Rod Peakall.



Barton, Lex. 1984. "Gastrodia sesamoides R. Br." *The Orchadian* 8(2), 45–45.

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