

***Collospermum hastatum* flowers may provide a previously unrecorded food source for *Vespula* wasps**

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Vespula wasps were breeding in Pukekura Park by 1952 (*Taranaki Herald* 13/2/1952, p.2; 16/2/1952, p.2). Those wasps were almost certainly German Wasps (*Vespula germanica*) because Common Wasps (*Vespula vulgaris*) did not become established in New Zealand until the 1970s. *Vespula* wasps are now abundant in Pukekura Park and Brooklands (“the Park”) during summer and autumn, where they feed on a variety of foods including floral nectar from many introduced and native New Zealand plants.

Collospermum hastatum, also known as Kahakaha or Perching Lily, is an endemic New Zealand member of the Asteliaceae family. It occurs, mainly as an epiphyte on trees, in lowland areas of the North Island and northern South Island. Plants can grow into large and very heavy masses which are frequently perched on branches high up in tall trees. Those masses sometimes fall to the ground and continue to grow there. *Collospermum hastatum* is dioecious, having male and female flowers on separate plants. The flowers appear in panicles in January and February. *Collospermum hastatum* is very common throughout the Park where it grows on numerous trees, both native and introduced.

The pistil of a flower is an integrated organ comprising stigma, style and ovary. Stigmas are the pollen-receptive portion. Mature stigmas produce secretions (stigmatic exudate) favourable for the retention and germination of pollen. Stigmatic exudates contain lipids, carbohydrates, proteins, and water. The amount, composition, and duration of stigmatic exudate varies between species. In addition to its primary role, stigmatic exudation may function

as a nutritive source for floral visitors such as flies and bees. As far as I am aware, the amount, composition, and duration of the stigmatic exudate of *Collospermum hastatum* has never been studied.

On 7/2/2011, I noticed numerous *Vespula* wasps visiting the female flowers of a large clump of terrestrial *Collospermum hastatum* in the Park. Wasps visited the flowers over the next several days, but then stopped doing so. Elsewhere in the Park, several *Vespula* wasps began visiting the female flowers of an epiphytic *Collospermum hastatum* when those flowers opened. Wasps also visited those flowers over the next several days, but then stopped doing so. When on the flower panicles, the wasps moved quickly over many flowers and fed rapidly. They seemed to feed only on the upper portions of the flowers, which were visibly moist. The wasps must have stopped visiting the flowers because the food source they provided was no longer available. All of the many wasps I identified from pertinent characters visible in my photographs were *Vespula vulgaris*. They were the only insects I saw feeding at female *Collospermum hastatum* flowers.

During my observations I saw several honeybees (*Apis mellifera*) collecting pollen from male *Collospermum hastatum* flowers, but I saw only two wasps visit those flowers. This suggests that male *Collospermum hastatum* flowers may not provide wasps with a sufficiently attractive food source. On the other hand, as mentioned, I saw numerous wasps visit female *Collospermum hastatum* flowers. This visitation coincided with the period when those flowers would have been producing stigmatic exudate. The wasps depicted in the accompanying photographs may have been feeding on those secretions. It is possible that wasps are attracted to female *Collospermum hastatum* flowers because of the stigmatic exudate they provide at this time.

This is the first published record of *Vespula* wasps feeding at *Collospermum hastatum* flowers. It may also be the first published record of *Vespula* wasps feeding on the stigmatic exudate of any flower.



Common Wasps feeding at female *Collospermum hastatum* flowers.

Pukekura Park, February 2011.



Photos David Medway