

## Unsuccessful attacks dominate a drone-preying wasp's hunting performance near stingless bee nests

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**ABSTRACT.** Bee males (drones) of stingless bees tend to congregate near entrances of conspecific nests, where they wait for virgin queens that initiate their nuptial flight. We observed that the Neotropical solitary wasp *Trachypus boharti* (Hymenoptera, Cabronidae) specifically preys on males of the stingless bee *Scaptotrigona postica* (Hymenoptera, Apidae); these wasps captured up to 50 males per day near the entrance of a single hive. Over 90% of the wasp attacks were unsuccessful; such erroneous attacks often involved conspecific wasps and worker bees. After the capture of non-male prey, wasps almost immediately released these individuals unharmed and continued hunting. A simple behavioral experiment showed that at short distances wasps were not specifically attracted to *S. postica* males nor were they repelled by workers of the same species. Likely, short-range prey detection near the bees' nest is achieved mainly by vision whereas close-range prey recognition is based principally on chemical and/or mechanical cues. We argue that the dependence on the wasp's visual perception during attack and the crowded and dynamic hunting conditions caused wasps to make many preying attempts that failed. Two wasp-density-related factors,

wasp-prey distance and wasp-wasp encounters, may account for the fact that the highest male capture and unsuccessful wasp bee encounter rates occurred at intermediate wasp numbers.

**Key words:** Predation; *Trachypus*; *Scaptotrigona*; Male; Detection error; Wasp density