

Programmed monitoring of bee flowering preferences

CRC for Honey Bee Products researchers successfully trialled video recording and analysis of flower visitors at test sites on Queensland's North Stradbroke Island.

Australian plant communities have thrived for millennia, forming a unique landscape with high biodiversity.

There are approximately 20,000 Australian flowering plants. Many attract insects for their pollination. Tracking which flowers are preferred by honey bees represents an important contribution to the viability of the industry.

Many factors are involved in flower visitor attraction, and the success of these strategies is measured by the number and frequency of insect visits and how long they spend on each flower.

Honey bees were introduced to North Stradbroke Island, located 30 kilometres south-east of Brisbane, more than 50 years ago. Even with this introduction, the CRC study observed the presence of 96 taxa visiting the flora on the island, indicating that a broad biodiversity has been maintained.

CRC researchers set up multiple video cameras and used dedicated video analysis software to monitor flower visits. The system provides a comprehensive assessment of flower visitor activity.



CRC HBP
FOR HONEY BEE PRODUCTS



bee-friendly



biodiversity



landscapes



Apis mellifera collecting nectar from *Alphitonia excelsa* (red ash) on Queensland's North Stradbroke Island





For a full year, CRC researchers monitored bimonthly, tracking 24 melliferous (honey yielding) species, representing a total of 72 flowering plants. The 205 hours of recording revealed 1,570 flower visitors from 96 distinct bee taxa.

Each flower species attracted different insect biodiversity. As expected, some flowers were more popular than others, with flower preferences varying according to insect species.

The video tracking system covers numerous locations simultaneously and does not require in-field scientific expertise.

In this environment and in the year these observations were recorded, ants account for the majority of the total abundance on flowers, followed by flies and the bees (both native and the honey bee).

Flower visitors change with season and with the time of day, variations that may contribute to the island's sustained flower visitor biodiversity.

As new questions arise from experiments, researchers can re-analyse the videos for the answers, and those insects that couldn't be identified by the researchers were subsequently captured for expert classification.

This CRC research helped to inform the revegetation of the nearby mine site by identifying the flora favoured by flower visitors for pollination, and their continued sustainability through seed production.



Automated video cameras recording bee visits to flowers

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