

# **Beetle's antennae finds potential mates**

September 16 2015



Credit: Fred and Jean Hort

Recent research from a team led by Dr Jonathan Cox shows how certain beetles use their antennae to locate potential mates. This is the first time scientists have studied molecule capture by the antennae of beetles.

Rare Australian Rhipicera beetles have elaborate <u>antennae</u> that resemble feather headdresses. The relatively large surface area of the antennae helps detect airborne molecules released by females.

Using a combination of methods, the team revealed the moleculetrapping tricks of these strange-looking insects.

### A close look at a rare beetle



A colleague at the Natural History Museum, Max Barclay, allowed Jonathan access to precious Rhipicera specimens. The team was able to inspect the antennal surface by scanning electron microscopy.

They found that thousands of disk-like sensors cover the male Rhipicera antennae. Female Rhipicera antennae have few sensors, suggesting the males use them to detect female scent.

### **Observation in the wild**

A timely chance to see the rare <u>beetles</u> in the wild supported these initial results. Terry Houston (Western Australian Museum) observed them in a residential garden in Perth.

Male Rhipicera perch in prominent positions and face the breeze. This is the best way for them to detect molecules emitted by females. They zigzag as they home in, like other scent-tracking animals.

## A Scilly idea

The work may have never have happened had it not been for a 2013 family holiday to the Isles of Scilly.





"We were walking on the island of St Mary's," said Jonathan. "My wife spotted a beetle with fanned antennae.

"Having based a model of an explosives-detecting device on these exact antennae years before, but only ever having seen them in a book, I got very excited. I spent the next half an hour lying in the middle of the road taking as many photographs as I could."

The beetle turned out to be a male May beetle, a species with similar ornate antennae. Once he'd looked online and discovered Rhiperica, Jonathan knew he had to find out more.

**More information:** "Towards an Understanding of Molecule Capture by the Antennae of Male Beetles Belonging to the Genus Rhipicera (Coleoptera, Rhipiceridae)." *Anat Rec*, 298: 1519–1534. doi: 10.1002/ar.23188



#### Provided by University of Bath

Citation: Beetle's antennae finds potential mates (2015, September 16) retrieved 16 May 2024 from <u>https://phys.org/news/2015-09-beetle-antennae-potential.html</u>

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