

Battle scarred ant antennae can't tell friend from foe

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(Phys.org) —Novel research shows damage to fine hairs on ants' antennae's hinders the ability to determine who is a nest mate and who is a threat to the colony.

Professor Mark Elgar and his team at the Department of Zoology,

University of Melbourne has shown that the right level of ant aggression depends on the density of the fine hairs on the [antennae](#).

The researchers conducted experiments with the tropical weaver ant, a notoriously aggressive species that builds nests in trees. To identify friend from foe a worker ant brushes her antennae across the other ant. If they don't share the same odour, the worker will attempt to maim and kill the intruder.

Professor Mark Elgar said, "We have shown if the hairs on the antennae have been damaged by battles or normal wear and tear, then the ants ability to detect the right message and respond appropriately is compromised. Surprisingly, this is not age related."

In the highly social ant world, protecting the nest from enemies is crucial for survival so the antennae play a critical role.

"We know that seeing and hearing in humans depends upon the condition of our eyes and ears, which often deteriorate with age, but we wondered whether this is a problem for lots of other species, " said Professor Elgar.

Antennae condition is vital to the social communication system of ants. Insects also rely on their antennae to find food, mates and safe places for their offspring, so their antennae must remain in excellent condition. For [ants](#), it's more of a number game; errors can be tolerated in large colonies.

"The significance of the condition of the chemical receptor organ for animal communication is not widely appreciated," says Professor Mark Elgar, "our study highlights the potentially devastating impact of failing to detect a message".

Their study on insect antennae was published in the *American Naturalist*.

Provided by University of Melbourne

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