

Termites eavesdrop on competitors to survive

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Cryptotermes secundus termites form small colonies and have few workers. They can 'eavesdrop' on their more aggressive relatives Coptotermes acinaciformis. Photo by Patrick Gleeson

(PhysOrg.com) -- The drywood termite, Cryptotermes secundus, eavesdrops on its more aggressive subterranean competitor, Coptotermes acinaciformis, to avoid contact with it, according to scientists from CSIRO Entomology and the University of New South Wales at the Australian Defence Force Academy.

Both species eat sound dry wood and can co-exist in the same tree but, while drywood termite colonies contain only about 200 individuals and are confined to one tree, colonies of Coptotermes - Australia's dominant wood-eating termite - contain around a million individuals, including thousands of aggressive soldiers, and can forage on up to 20 trees simultaneously.

"We already knew that chewing <u>termites</u> generate vibrations which they



use to determine wood size and quality, so it seemed possible that one species could detect another using these vibrations," CSIRO <u>Entomology</u> 's Dr Theo Evans said.

"We found that Cryptotermes could use vibration signals to distinguish between their own and Coptotermes individuals. They would even respond to recorded signals.

"This is the first time the ability to identify a different species using only their vibration signals has been identified in termites.

"Because vibration signals move rapidly through wood and can be detected from a distance, the vulnerable species have an eavesdropping advantage as they can detect their aggressive relatives without having to come into contact with them."

Dr Evans said the advantage to Cryptotermes in avoiding Coptotermes was made very clear in one trial where the Coptotermes tunnelled through a 20mm block of wood and killed all the Cryptotermes.

Cryptotermes and the 'tree piping' Coptotermes are heartwood eaters and are among the few termites groups that attack buildings. Eighty-five percent of Australian trees are infested with Coptotermes.

Coptotermes enter trees through their roots and it is their 'tree piping' that produces the raw material for the didgeridoo.

This research - conducted in collaboration with Professor Joseph Lai at UNSW@ADFA and with the support of the Australian Research Council - was recently published in the *Proceedings of the Royal Society B*.

Provided by CSIRO (<u>news</u> : <u>web</u>)



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