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Biological control of crazy ants on Christmas Island

After several years of research, La Trobe University has identified a biological control agent that should help us tackle yellow crazy ants here on Christmas Island. This is great news for our native wildlife.

The solution is a tiny flying insect from Malaysia, called *Tachardiaephagus somervillei*.

It's called a micro-wasp, but it doesn't sting or build nests. We hope it will stop the ants by cutting down their food supply, a sugary substance called 'honey dew' which is produced by the yellow lac scale insect.

How does it work?

The main food supply for the crazy ants is honey dew produced by the yellow lac scale insect. This micro-wasp preys on the scale insect, killing it by laying eggs inside it. This means less food for crazy ants to eat. This interrupts crazy ant breeding, reducing their numbers and potentially stopping the ants from forming super-colonies.

Is it safe?

Yes, it is safe. The micro-wasp cannot harm humans, pets or other wildlife. It only preys on this one kind of scale insect – it doesn't eat anything else. This scale insect is also a pest for fruit trees, so the micro-wasp should be helpful for horticulture and gardens too.

Will it work?

The research shows that this will work. If we launch a successful biological control project here, it will assist our red crabs and other wildlife. It should allow us to stop aerial baiting with Fipronil to control the crazy ants.

Micro-wasps are already used extensively for biological control on mainland Australia, so this approach is fairly common. We're a long way from the days of the cane toad, which was released in Australia with very little scientific testing – these days biological control is carefully planned and controlled.

Who is running this project?

The funding for this project is coming from Parks Australia, which manages Christmas Island National Park. The project is jointly overseen by La Trobe University and Parks Australia.

The tiny solution

The micro-wasp is only 2 mm long. Can you see it inside the '0' on this 20 cent coin?



Similar micro-wasps already live on Christmas Island, but are rarely noticed.

Would you like to know more?

Contact Dion Maple at Christmas Island National Park on 08 9164 8700 or

dion.maple@environment.gov.au or visit www.environment.gov.au/resource/crazy-ant-biocontrol

Next steps

Parks Australia has applied to the Australian Government Department of the Environment for permission to go ahead with the biocontrol project, under the *Environment Protection and Biodiversity Conservation Act 1999*. This involves assessment of detailed documentation and public comment.

Parks Australia has also applied to the Australian Government Department of Agriculture for permission to import and release the micro-wasp. Agriculture will do an independent assessment of the project, which will also involve public comment.

We hope to get final approvals this year (2015), and we will then move to introduce the micro-wasp in crazy ant super-colonies on Christmas Island. It will take some years to know whether the project has succeeded in cutting down the crazy ants, because it will take time for us to breed up the micro-wasps and release and distribute them in crazy ant super-colonies.

Why crazy ants are a problem

Yellow crazy ants were accidentally introduced to Christmas Island between 1915 and 1934. By the late 1990s they had formed multi-queen colonies with incredibly high densities of ants, called 'super-colonies'. The super-colonies then killed tens of millions of land crabs, most significantly our iconic red crabs both in their burrows and during the migration. In 2002 there were over 2,500 hectares of super-colonies on Christmas Island!

Red crabs shape and maintain the health of the island's rainforests. Without red crabs, the open and clear understorey of Christmas Island's rainforests changes, creating flow-on effects that impact on the entire rainforest ecosystem. Crazy ants also compete with and prey on other native animals and indirectly cause the dieback of trees, reducing rainforest health, and they also help other introduced species to establish, like giant African land snails.

Other ways to control crazy ants

The current way of controlling crazy ants isn't ideal. It involves dropping poison baits from a helicopter into crazy ant super-colonies. Parks Australia has conducted aerial baiting, using an insecticide called Fipronil, in 2002, 2009 and 2012.

Fipronil is highly effective at controlling crazy ants, but as Fipronil is poison, it can also kill other animals, like robber crabs, if not distributed responsibly. So, while crazy ant baiting is effective, it is expensive and can only occur after crazy ant super-colonies form and the damage has been done. In addition, as baits are poison, we want to reduce and if possible avoid their use.

That's why we've been investigating biological control options with La Trobe University - to find a better solution for the crazy ant problem.

