

Eradicating cane toads with 'their own medicine'

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“Cane toads are different from native Australian frogs in [their possession of] a sophisticated communication system used by tadpoles.”—Professor Shine.

Credit: Flickr: eyeweed

Sydney University biologists have discovered cane toad tadpoles (*Bufo marinus*) communicate using chemicals excreted into the water, a finding that may help to impede the Cane Toad invasion of the Kimberley.

Dr. Michael Crossland is the primary [researcher](#) in the post-doctoral fellowship program aiming to discover more about the ecology of the toxic pest invading the Kimberley from the Northern Territory.

Evolutionary ecologist Professor Rick Shine says this finding is the latest instalment in a research program that has been running for the last six

years.

“Cane toads are different from native Australian frogs in [their possession of] a sophisticated communication system used by tadpoles,” he says.

“They produce chemicals that diffuse through the water which other cane toad tadpoles pick up and make all sorts of decisions based on.”

The first of these chemicals is an alarm pheromone that causes other Cane Toad tadpoles to flee.

Exposed to the [chemical](#) too often, the tadpoles either die or grow up as small, stunted toadlets with poor survival prospects.

“If they experience this chemical frequently while developing, many of them die—apparently from stress,” Prof Shine says.

The second is an attractant emitted by freshly-laid eggs enabling existing Cane Toad tadpoles to seek out and kill any eggs they sense.

“The big benefit of [the attractant chemical] is the removal of future competitors, because a cane toad is another cane toad’s worst enemy,” Prof Shine says.

“If we can find the attractant chemical, we can put it in traps and attract cane toad tadpoles into them, without attracting the native tadpoles.”

If the tadpoles are unable to destroy the eggs, they can also emit another chemical that kills potential new tadpoles before they hatch, or stunts their growth if they do.

“[Because of this] merely the presence of older [cane toad](#) tadpoles in the

water surrounding the eggs is enough to wreck the development of the tadpoles which emerge from those new [eggs](#),” Prof Shine says.

“Most of those die and the ones that end up turning into baby toads do so in a miniature size simply because of that very brief exposure to the chemicals that the older tadpoles have produced.

“...Our idea is to try to take advantage of that and turn the toads’ weapons against themselves.”

Prof Shine hopes these chemicals can be identified and used to help community groups combat [toads](#) and says while some will take years to isolate, others may be ready as soon as next year.

More information: More information is available at the Shine Lab sydney.edu.au/science/biology/shine/

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