

Brushtail possums can learn from their peers, researcher finds

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Possoms can learn by watching each other according to new research, which showed, for the first time, that possums were more successful in solving a puzzle after they had observed others tackling it first. Credit: University of Canterbury

Using a \$9 dog treat toy, University of Canterbury (UC) Master's student

Emma Godfrey has conducted research showing, for the first time, that common brushtail possums can learn from their peers.

"As far as we were able to find, this study is the first to have looked into the social learning abilities of common brushtail possums, which is very exciting," Godfrey says.

The toy served as a puzzle she says, with five different colored domes of which two were 'target domes,' containing chocolate hazelnut spread. "We were trying to teach them to open the target domes to get to the rewards as an incentive for learning."

Meanwhile, "observer" possums in adjacent pens watched the "demonstrator" possums for five nights before getting the chance to solve the puzzle themselves.

While two of the eight demonstrators solved the puzzle on the first night, and three succeeded on later nights, the possums who watched them did much better. 15 out of the 15 observers succeeded in solving the puzzle on the first night, strongly suggesting they learned from watching the demonstrators.

Although the experiment sounds fun, it has potentially serious implications for pest eradication in Aotearoa New Zealand.

"I think the more we can understand about how possums learn (or stoats or rats which New Zealand also aims to eradicate), this can hopefully provide us with ways of improving current methods or creating new ways of pest control. New Zealand's biodiversity is heavily impacted by possums so any new knowledge that can help with eradication is important in order to protect our [native species](#)," Godfrey says.



UC Master's student Emma Godfrey's dream to work with animals and study their behaviour is coming to fruition at UC. Credit: University of Canterbury

The next stage is to explore whether possums can also learn from each other what to stay away from. "More research needs to be done to test, explicitly, if [social learning](#) is helping possums avoid baits and traps."

The paper, "Social learning in a nocturnal marsupial: is it a [possum](#)-ability?" was published with supervisors Professor Elissa Cameron (Ngāi Tahu) from UC and Graham Hickling from Manaaki Whenua—Landcare Research, in *Biology Letters*.

Working with experienced supervisors and publishing her first paper was exciting, Godfrey says. "It feels amazing. You put all this time and effort

into doing the research, and then more time finalizing the manuscript, so for it to be finally out in the world is a bit surreal as a first-time publisher."

Godfrey "thoroughly enjoyed" working with Professor Cameron, who won the 2022 UC research medal for her internationally recognized research into social bonds in wildlife including South African giraffes, Tasmanian Devils in Australia and Kaimanawa wild horses in Aotearoa. Godfrey was also set to study giraffes, however COVID disruptions set her on a different course and Dr. Hickling, senior scientist with Maanaki Whenua and Emeritus Professor University of Tennessee, provided the possum expertise.

Following a double major in Biology and Psychology, Godfrey knew she most wanted to work with animals and study their behavior. "Anyone who knows me knows that I've always been drawn to animals, and I genuinely love learning about all aspects of them, so being able to do my own animal behavior research was a dream come true," she says.

And the dream continues with a UC Aho Hīnāture Accelerator scholarship paving the way for a Ph.D. at UC.

Meanwhile, Godfrey's current [research](#) is attracting attention. "If I look back on when I started and we were just beginning to design the experiment, I never would've expected the interest people have shown in it, so it's a wild experience really."

More information: Emma J. Godfrey et al, Social learning in a nocturnal marsupial: is it a possum-ability?, *Biology Letters* (2023). [DOI: 10.1098/rsbl.2022.0460](https://doi.org/10.1098/rsbl.2022.0460)

Provided by University of Canterbury

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