

When it comes to claws, right-handed attracts the girls

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Left-clawed amphipod. Credit: Bernardo J. O'Connor, University of Adelaide undergraduate student

A tiny marine crustacean with a great big claw has shown that not only

does size matter, but left or right-handedness (or in this case, left or right-clawedness) is important too.

The 5-6mm marine amphipod *Dulichiesta appendiculata*, related to the land-based beach-hopper or sand flea we see hopping around on beaches, has one large claw on one side (either right or left), and a small claw on the opposite side.

A University of Adelaide study of the amphipod, published in the *Journal of Crustacean Biology*, has discovered that males with the large claw on the right-hand side are more gregarious and attract more females than their left-clawed competitors.

"Having a large claw on one side is a really cool aspect to this species," says Dr Pablo Munguia, ecologist and evolutionary biologist at the University of Adelaide's School of Biological Sciences.

"While it's common for males to have large structures of various kinds to attract females – think elk horns or peacock tails – there are very few species in nature with such asymmetry. The only other species are also crustaceans, such as male fiddler crabs, which also have one large claw.

"But in this case, it's not just the size that matters. With *Dulichiesta appendiculata* the right-clawed males not only have a larger claw than the left-clawed males but they are more gregarious, hanging out with other males as well as attracting more females.



Right-clawed amphipod. Credit: Bernardo J. O'Connor, University of Adelaide undergraduate student

"The left-clawed males are more solitary. Interestingly we think this is why the left-clawed males have survived in the population – in fact there is about 50:50 ratio of each. The left-clawed males tend to disperse more rapidly and occupy more habitats, so there is probably a greater chance of them coming across a female while on their own and uncontested."

This crustacean is found in small rocky reefs in Florida and now Dr Munguia is expanding his research to include amphipods across Australia and the south-western Pacific.

To conduct the study, Dr Munguia built small artificial reefs within seagrass beds and followed colonisation patterns after different time periods over three years.

The amphipods have other fascinating traits. The females have small pouches below the body, like marsupials, where they carry their eggs ready for fertilisation. The male will latch onto a female it selects for mating and guard it until the eggs are ready for fertilisation.

The big claw, while helpful in fending off other [males](#), gets somewhat in the way during fertilisation.

"The large [claw](#) is physiologically expensive, requiring a lot of energy to make and carry around, and it's probably hampering their ability to reproduce. This is probably why these species aren't more common," Dr Munguia says.

More information: Katherine Heldt et al. Dichotomous male asymmetry in metapopulations of a marine amphipod, *Journal of Crustacean Biology* (2016). [DOI: 10.1163/1937240X-00002437](https://doi.org/10.1163/1937240X-00002437)

Provided by University of Adelaide

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