

Size doesn't matter to fighting fiddler crabs

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A person's home may be their castle and in the world of the fiddler crabs having the home advantage makes it a near certainty that you'll win a battle against an intruder – regardless of your opponent's size.

That's one of the findings of a new study by a research team from The Australian National University which will be published today in *Biology Letters*. The team, working from the University's Darwin research station, set out to discover why male fiddler crabs have an 'owner advantage' when defending their burrow that equates to a 92 per cent success rate.

Dr Patricia Backwell from the University's School of Botany and Zoology at ANU said that previous theories include the possibility that owners might be inherently better fighters or that established crabs could call in support from neighbours - but she said these had less of an effect than having access to the burrow during a fight.

"My student Sarah Fayed and I were surprised that the key factor seems to be the strength of the mechanical advantage gained by owners having access to the burrow during fights," Dr Backwell said.

"Something must happen when crabs become homeowners that changes how they fight. It could be that being able to position yourself in the burrow provides a biomechanical advantage when grappling with opponents, or perhaps by retreating into the burrow it makes it harder for the opponent to fight without expending energy digging you out."

Fiddler crabs – which can be recognised by the single oversized claw of males – have to retreat into their mangrove mudflat burrows as the high tide approaches. Those without homes – floaters – become prey to sea predators. But the floaters have little chance of protecting themselves and securing a ready-made burrow when owners win almost all fights. It's a pattern that's repeated throughout nature, according to another team member, Dr Michael Jennions, Reader at the School of Botany and Zoology.

“Dr Backwell’s team used fiddler crabs because they’re small and easy to manipulate, but it’s a general pattern in nature – with insects, bird or mammals - that male territory owners seem to win most fights,” he said.

“It has been thought before that because there is limited space for territories, the good guys get the burrows and the lousy individuals are forced to wander about looking for a home – hence the ‘owner advantage’. But we eliminated that explanation by taking a current owner and looking at his success in securing a new burrow – there was no difference between him and the natural floaters. So floaters are not simply weaker fighters.”

Source: Australian National University

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