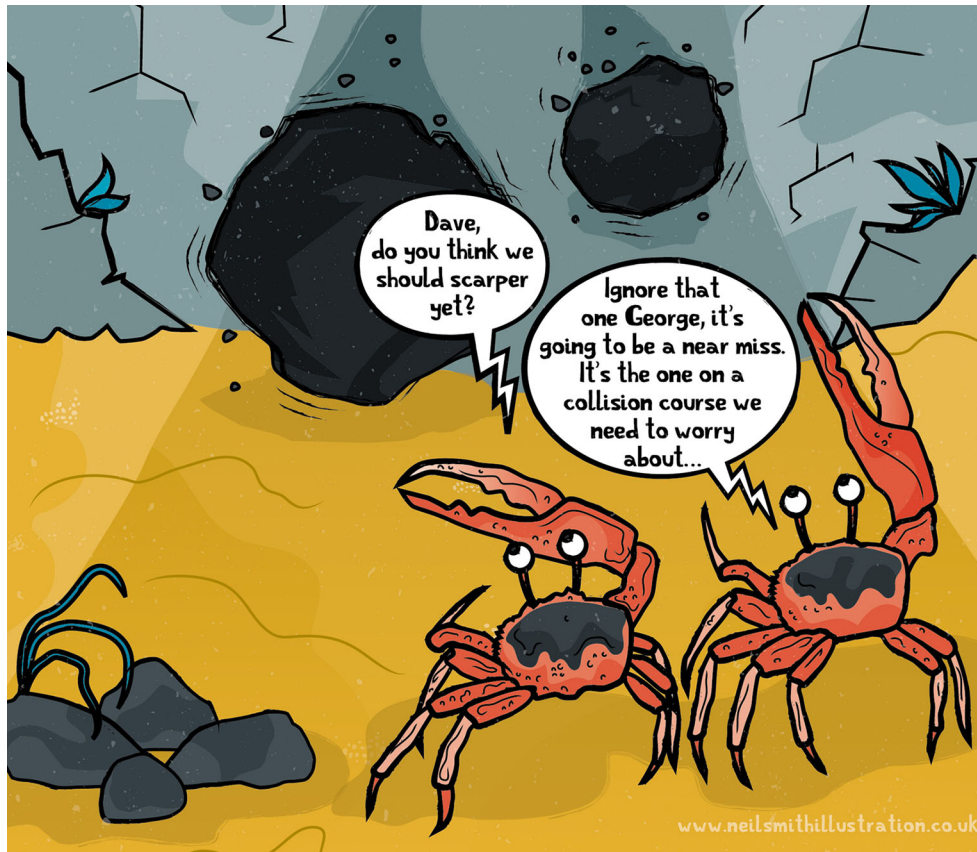


INSIDE JEB

Fiddler crabs ignore near misses when threatened from all sides



Everyone suffers with attention overload from time to time. Sometimes there are simply too many meetings and deadlines for one brain to keep track of, so you have to prioritise. Yet, compared with the life and death attention grabbers that stalk many creatures' lives, we've got it easy. 'Prey animals are often exposed to multiple simultaneous threats, which significantly complicates the decision-making process', says Zahra Bagheri from the University of Western Australia. So how do animals that are facing several threats simultaneously prioritise which one, or ones, to take seriously?

To find out how fiddler crabs respond when confronted with two looming threats, Bagheri, Callum Donohue and Jan Hemmi, also from the University of Western Australia, rigged up a pair of black spheres suspended on fishing line travelling threateningly toward the

crustaceans: one on a direct collision course and the second coming in at an angle to produce an alarming near miss. Intriguingly, the crabs that were on a near-miss collision course began scuttling for safety when the alarming ball was as much as 300 cm away. However, the crabs that were in direct line with the incoming sphere stood their ground until it was within 100 cm; only then did they beat a retreat. In contrast, when confronted with both inbound balls simultaneously, instead of turning tail when the near-miss ball was within 300 cm, the crabs held on until the ball heading straight for them came within a threatening 100 cm. The crabs appeared to be completely disregarding the less dangerous threat, focusing exclusively on the inbound ball that could genuinely bowl them over.

'Crabs that face multiple predators simultaneously behave as if they only face

the single, directly approaching predator', says Bagheri, adding, 'this suggests that the crabs do not perceive, or do not respond to, the increased risk of predation posed by two simultaneous predators'. The team suspects that the crabs weigh up the relative dangers of each impending threat and focus on the one that poses the greatest risk, ignoring others that would simply result in a narrow escape. After all, there's only so much attention to go around, so the key to survival is to use it wisely.

10.1242/jeb.238188

Bagheri, Z. M., Donohue, C. G. and Hemmi, J. M. (2020). Evidence of predictive selective attention in fiddler crabs during escape in the natural environment. *J. Exp. Biol.* **223**, jeb234963. doi:10.1242/jeb.234963

Kathryn Knight
kathryn.knight@biologists.com