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Consider the ant

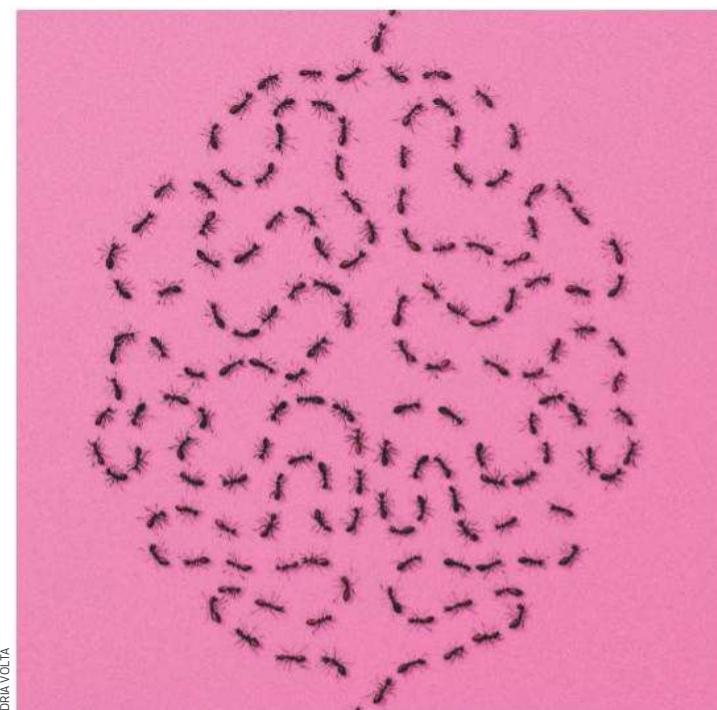
Insects such as ants are being overlooked in favour of the darlings of conservation. We need to celebrate their brilliance, says **Robert Barrie**

WHEN a humpback whale arrived in the seas off Mexico last year, the scientific world sat up in wonder. And with good reason, because the whale – aptly named Frodo – had just finished an 11,000-kilometre journey that began in the Mariana Islands, in the north-western Pacific.

Whales and birds are frequently touted as Earth's chief navigators. Insects, too, are showcased – often represented by butterflies and bees. Ants, however, are rarely on the lips of those discussing nature's best pilots. As someone who has researched ant navigation, this is disheartening, particularly when considering the lack of action to address ants' dwindling numbers compared with that for other insects and mammals.

Like whales, ants display extraordinary spatial skills as part of their remarkable navigational toolkit. Their most well-known strategy – chemical signalling via pheromones to guide nestmates along shared paths – barely scratches the surface.

Recent research I was involved with shows a new navigational characteristic for ants living in complex environments. Wood ants (*Formica rufa*) returning to the nest through the cluttered undergrowth exhibit idiosyncratic routes. That is, whereas one ant might always go to the right of a bush and then under a log when returning home, another might always go to the left and then over. This suggests the ants are relying



on visual cues as opposed to pheromones, the responses to which would show considerable overlap. It is the visual memories of the ant's first return to the nest that form the basis for the journeys to come.

Or take the North African desert-residing ant *Cataglyphis fortis*. In another ploy of navigational notability, each ant uses an internal "step counter" and celestial cues to calculate its position relative to the nest in the barren Saharan terrain. A recent study revealed that this species also constructs mounds as visual cues to help find the way home.

How rising global temperatures will affect ants living in such harsh environments remains to be seen. But overall, insects are already in dire straits. A 2020 study found that terrestrial insect numbers are decreasing by 0.92 per cent per year on average – that's a lot of insects considering there are around 10 quintillion currently estimated to be alive. The UK State of Nature report for 2023 estimates that numbers of crop pest predators – which includes ants – have fallen by 34 per cent in the UK since 1970.

Ants don't benefit from a wide range of conservation strategies. Humpback whales, on the other

hand, have thankfully seen their numbers bounce back due to protection initiatives. Indeed, a study of UK conservation policies found that mammals receive more uniform protection than insects. Lepidoptera – butterflies and moths – dominate insect policies, which, the work suggests, is to the detriment of other insect groups such as hymenopterans, of which ants are members.

Despite how vital insects are to our planet, their biodiversity is in jeopardy, and it is our duty to make a case for invertebrate protection across the board. Their kaleidoscope of individualistic behaviour, such as remarkable navigational accuracy, originating from relatively basic neural circuits, is key to attracting public support. If only more people knew that dung beetles navigate using the Milky Way, for example, their presence on conservation lists would surely be more frequent.

Yes, Frodo travelled 11,000 kilometres. But large whales have upwards of 10 billion neurons. A wood ant has just a fraction of that – far less than a million – yet she can still travel the same route home across a dense woodland. A route unique to her and none other. Perhaps thinking of insects as individual animals, rather than their collective species, is a start. ■

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