

Well-traveled wasps provide hope for vanishing species

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They may only be 1.5mm in size, but the tiny wasps that pollinate fig trees can travel over 160km in less than 48 hours, according to research from scientists at the University of Leeds. The fig wasps are transporting pollen ten times further than previously recorded for any insect.

The fig wasps travel these distances in search of trees to lay their eggs, which offers hope that trees pollinated by similar creatures have a good chance of surviving if they become isolated through deforestation.

"Fig trees provide very important food for vertebrates," explains Dr Stephen Compton of the University's Faculty of Biological Sciences. "More birds and animals feed on fig trees than on any other plant in the rainforest. Our research shows that trees pollinated by this type of insect should be very resistant to forest fragmentation."

"Fig wasps are weak flyers," added Dr Compton. "They fly up in an air column and are then carried by wind until they sense host figs at which point they drop close to the ground and hunt out the scent of the tree which is specific to them.

"As adult [wasps](#) live for just 48 hours, they must have travelled these distances incredibly fast. It took our field scientists and volunteers nearly two weeks to walk 250km and map the fig trees used in the research."

Using a unique mix of field work and genetic tests, the researchers tracked the movement of pollen between trees and used this as the marker for insect movement.

The scientists mapped all the African fig trees (*Ficus sycomorus*) along 250km of the Ugab River valley in the Namib Desert. Due to the climate, the trees were only able to survive near the river, which made it possible to identify each of the 79 trees in the area individually.

The trees were DNA tested and seedlings grown from their fruit. Genetic tests on the seedlings enabled the researchers to identify which trees had cross-pollinated. As the trees are only pollinated by the fig wasp *Ceratosolen arabicus*, the scientists were able to map the distances travelled by the insects.

"This is the first research to identify each individual tree, rather than extrapolate the genetic mix from a sample," said Professor Philip Gilmartin, formerly from Leeds and now at the University of Durham. "We were basically paternity testing trees: we knew which tree was the 'mother' and because we already had the DNA results for the other trees, it was easy to identify the 'father'. It meant we were tracking the route of an individual grain of pollen."

The shortest distance recorded for cross-pollination was 14km and the

furthest 164km. Trees were not necessarily pollinated by their nearest neighbour, and some pollen came from unidentified trees, indicating that some insects were travelling even longer distances than those recorded.

The findings are published this week in the *Proceedings of the National Academy of Sciences (PNAS)*.

Source: University of Leeds ([news](#) : [web](#))

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