

We might be beginning to understand why bees are dying

Excess stress being put on bees is forcing them to forage younger, which in turn has negative effects.

Stressed young bees which are forced to grow up too fast could largely account for huge declines in populations of bees around the world, research suggests.

Bees usually begin foraging at two to three weeks old, but when older workers are killed off by disease, lack of food, or other factors they have to start younger.

Scientists who attached radio tracking devices to thousands of bees found that early-starters completed fewer foraging flights and were more likely to die on their first journey.

The phenomenon may be a key factor behind colony collapse disorder (CCD), a major threat to bee colonies and crop pollination around the world whose origins are still not fully understood.

Lead researcher Dr Clint Perry, from the School of Biological and Chemical Sciences at Queen Mary, University of London, said: “Young bees leaving the hive early is likely to be an adaptive behaviour to a reduction in the number of older foraging bees.

“But if the increased death rate continues for too long, or the hive isn’t big enough to withstand it in the short term, this natural response could upset the societal balance of the colony and have catastrophic consequences.

“Our results suggest that tracking when bees begin to forage may be a good indicator of the overall health of a hive. Our work sheds light on the reasons behind colony collapse and could help in the search for ways of preventing colony collapse.”

The scientists used data from the bee-tracking to model the impact on honey bee colonies in a computer simulation, finding that any stress leading to chronic forager death among older bees led to an increasingly young foraging force.

Having a younger foraging population lead to poorer performance, and more rapid deaths of foragers, dramatically accelerating colony decline in line with observations of CCD seen around the world.

The findings appear in the journal Proceedings of the National Academy of Sciences.