In a paper, published this Wednesday (24 July) in the Proceedings of the Royal Society B: Biology, an interdisciplinary team of scientists, including mathematician Dr Tim Rogers, outline findings from a recent study into the mathematics of biodiversity. Small organisms, measuring less than one millimetre, form the bedrock of the global ecosystem and their diversity is crucial for ecological health and stability. With recent advances in genetic sequencing technology, ecologists had hoped to be able to count the number of different species of such creatures by looking for groups of organisms with similar genomes.

The new results suggest that classifying very small creatures from extremely large populations into species may actually be impossible. This is because for very large populations, the gradual build-up over time of random genetic mutations leads to an overwhelming amount of diversity, possibly making the idea of 'species' irrelevant.

Report co-author and Prize Fellow in the Centre for Networks and Collective Behaviour at the University of Bath, Dr Tim Rogers, said: “We used a mathematical model to investigate some of the puzzling data on the genetic diversity of very small creatures. Surprisingly, we found that the idea of ‘species’ may not really be applicable in this case. Our findings suggest that even in very large populations, it's the individuals that matter.”