

# Evolution of new species slows down as number of competitors increases

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The rate at which new species are formed in a group of closely related animals decreases as the total number of different species in that group goes up, according to new research published in *PLoS Biology*.

The research team believes these findings suggest that new species appear less and less as the number of species in a region approaches the maximum number that it can support.

In order for new species to thrive, they need to evolve to occupy their own niche in the ecosystem, relying on certain foods and habitats for survival that are sufficiently different from those of other closely related species.

Competition between closely related species for food and habitat becomes more intense the more species there are, and researchers believe this could be the reason for the drop-off in the appearance of new species over time.

Dr. Albert Phillimore, from Imperial College London's NERC Centre for Population Biology, lead author on the paper, explains: "The number of niches in any given region is finite, and our research supports the idea that the rate of speciation slows down as the number of niches begins to run out.

"In essence, it seems like increased competition between species could place limits on the number of species that evolve."

The new study used detailed analysis of the family trees, or phylogenies, of 45 different bird families. By examining the rate at which new species have arisen in each of these trees over a period of millions of years, scientists saw that the rate of appearance of new species seemed to be much higher in the early stages of the family tree, compared to more recent lower rates.

For example, when the researchers examined the phylogeny of tit birds they found that some 10 million years ago, species formed rapidly but this rate has slowed over time to perhaps a quarter of the initial rate.

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