

Warming world may spell bad news for honey bees

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Honeybees (queen marked). Image: Dr Bill Hughes

Researchers have found that the spread of an exotic honey bee parasite -now found worldwide - is linked not only to its superior competitive ability, but also to climate, according to a new study published in the journal *Proceedings of the Royal Society B*.

The team of researchers, including Myrsini Natsopoulou from the Martin-Luther-Universität Halle-Wittenberg, who co-led the research alongside Dr. Dino McMahon from Queen's University Belfast, believes that the parasite could become more prevalent in the UK in the future and their findings demonstrate the importance of both parasite competition and [climate change](#) in the spread of this emerging disease.

Myrsini Natsopoulou said: "Our results reveal not only that the exotic parasite is a better competitor than its original close relative, but that its

widespread distribution and patterns of prevalence in nature depend on climatic conditions too".

The research compared pathogen growth in honey bees that were infected with both the exotic parasite, *Nosema ceranae* and its original native relative, *Nosema apis*.

Experiments showed that, while both [parasites](#) inhibit each other's growth, the exotic *Nosema ceranae* has a much greater negative impact on the native *Nosema apis* than vice versa. By integrating the effects of competition and climate into a simple mathematical model, the researchers were better able to predict the relative occurrence of both parasite species in nature: *Nosema ceranae* is common in Southern Europe but rare in Northern Europe.

Coauthor of the study, Prof. Robert Paxton of Queen's University Belfast, added: "This emerging parasite is more susceptible to cold than its original close relative, possibly reflecting its presumed origin in east Asia. In the face of rising global temperatures, our findings suggest that it will increase in prevalence and potentially lead to increased [honey bee colony](#) losses in Britain."

More information: Interspecific competition in honey bee intracellular gut parasites is asymmetric and favours the spread of an emerging infectious disease, [rspb.royalsocietypublishing.org1098/rspb.2014.1896](https://royalsocietypublishing.org/doi/10.1098/rspb.2014.1896)

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