

OR041

Disease associations between honeybees and bumblebees: a threat to pollinators

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Pollination is one of the key ecosystem services and it is provided mainly by insects, bees in particular. The recent dramatic decline in honeybee populations as well as wild bee populations is therefore of significant concern, especially since the driving forces are largely unexplained to date. A variety of potential causes have been proposed and, among others, diseases have come into focus. Emerging infectious diseases (EIDs) are recognized as particularly problematic, as the absence of co-evolutionary history between pathogen and host favours highly virulent pathogens in comparably poorly-defended hosts. Prominent examples of EIDs are viruses, fungi and mites in honeybees. Some of these honeybee diseases have recently been detected in a variety of non-*Apis* pollinators including bumblebees (*Bombus sp.*). Even though potentially detrimental to these wild bee populations, next to nothing is known about the basic epidemiology of the newly detected diseases in these vital and charismatic pollinators. To advance our understanding we collected data on prevalence of the microsporidian *Nosema ceranae* and the I flavivirus DWV (deformed wing virus) in the most common bumblebees across the UK along with data on honeybee densities and disease prevalence in honeybees at our collecting sites to assess the degree of disease advance and the potential role the original host plays. Both pathogens were present and infective in bumblebees as well as honeybees across the UK, with strong evidence for disease transmission from honeybees to bumblebees. These results have important implications for potential wild pollinator conservation actions.