

RISK OF VIRUS TRANSMISSION TO WILD BEES DUE TO POOR *VARROA DESTRUCTOR* CONTROL

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Abstract

Wild bee populations are declining globally, and virus host shifts from managed pollinators may be involved. In particular, inadequate management of ectoparasitic mites *Varroa destructor*, being potent honey bee virus vectors, may foster virus transmission from managed honey bees to other hosts. However, the actual role of *V. destructor* infestation levels in *Apis mellifera* colonies for virus transmission to local wild bees remains unclear. Here, we quantified infection rates of managed and wild bees with two viruses associated with *V. destructor* – Deformed wing virus (DWV) and Acute bee paralysis virus (ABPV) – and one virus which is not thought to be transmitted via *V. destructor*, Black queen cell virus (BQCV). By comparing infection rates, virus prevalence, and viral loads in managed and wild bees collected near highly (above 50 mites per day on the bottom board) and low (control; below 5 mites per day on the bottom board) infested apiaries, we assessed whether *V. destructor* infestations influence virus spillover to sympatric wild bees. We hypothesise that wild bees close to apiaries with high mite infestation levels have higher loads of DWV and ABPV than wild bees close to apiaries with low infestation levels. Further, we hypothesise that there is no difference in the load of BQCV when comparing wild bees collected close to highly infested apiaries to wild bees collected close to low infested apiaries. Altogether, this study will enable us to evaluate the risks associated with beekeeping practices while highlighting the benefits of effective mite control for both managed and wild bee health. The results will be presented and discussed.