

MANAGED AND WILD BEES: ENEMIES OR ALLIES?

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Abstract

Many pollinators are currently declining, calling for appropriate mitigation policies to ensure ecosystem functioning, food security and human well-being. While there is consensus that some factors, such as land management and pesticides, play an important role in these declines, other potential stressors remain more controversial. In recent years, competition for resources with and pathogen transmission from managed bees have been increasingly considered as contributing to wild bee declines, generating conflicts among beekeepers, farmers, conservationists and scientists. We argue that scientific knowledge of the interactions between managed and wild bees is insufficient to resolve the conflicts through contextualized, evidence-based policies. Existing studies are correlational and limited in space and time. This prevents a high level of confidence in the potential effects of managed bees on wild bees and hinders the creation of effective mitigation measures. In addition, effects on wild bee population sizes and genetic diversity, which are key to assessing long-term impacts, were never estimated. Potential negative interactions between managed and wild bees also need to be weighed against other stressors known to affect bees, such as land management, pesticide use, invasive species and climate change. To prioritize mitigation efforts, we advocate increased communication and collaboration between stakeholders to co-create policies integrating ecological and socioeconomic dimensions. To work towards this aim, we present our project BEENERGIA, which combines modern molecular and modelization tools to better understand the interactions among bees in different contexts with stakeholder engagement to reconcile managed and wild bee proponents for the benefit of all bees. The availability of more contextualized and consensual bee conservation measures will allow a productive and sustainable beekeeping activity aligned with pollination requirements and the conservation of biodiversity.