Opinion

BUILD THE EU POLLINATOR MONITORING SCHEME ON ROBUST EVIDENCE

André Krahner*, Anke C. Dietzsch, Tobias Jütte, Felix Klaus, Oleg Lewkowski, Severin Polreich, Jens Pistorius

Julius Kühn Institute (JKI) – Federal Research Centre for Cultivated Plants, Institute for Bee Protection, Messeweg 11/12, 38104 Braunschweig, Germany

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*Corresponding author: andre.krahner@julius-kuehn.de

Abstract—Recently, the Proposal for an EU Pollinator Monitoring Scheme (EUPoMS) has been revised, presenting options for a standardised monitoring of insect pollinators across the EU. While we appreciate the overall EUPoMS approach, we argue that the adequacy of core methods in the revised EUPoMS is not substantiated by robust evidence. We consider it essential that the authors will make an effort in the near future to catch up on explaining the exclusion of pan traps from the EUPoMS Core Scheme to the scientific community. This will ultimately secure scientific and public trust in the EUPoMS.

Keywords—Apiformes, bees, Hymenoptera, insect sampling, methodology, pan traps

Recently, the Proposal for an EU Pollinator Monitoring Scheme (EUPoMS) has been revised (European Commission et al. 2024). In a nutshell, the EUPoMS is an expert opinion that presents options for a standardised monitoring of insect pollinators across the EU. We highly appreciate the overall EUPoMS approach to strive for scientific consensus on best practices. However, the revised version contains a section focussed on wild bees and dedicated to an "assessment of the potential impact of floral resources on abundance estimates from pan traps in comparison with transect walks", which has caught our attention. Therein, the authors argued against an inclusion of pan traps in the Core Scheme of the EUPoMS, retaining transect walks with hand netting as the sole method for sampling bees, hoverflies and butterflies. The authors claimed that they achieved an "increased understanding" of the effects of floral resources on samples from hand netting and from pan traps. In this comment, we argue that the authors fail to provide meaningful improvement in understanding the effects of varying floral resources on bee samples from hand netting and from pan traps, hence they fail to justify suggested methodological changes in the EUPoMS Core Scheme, putting scientific and public trust in the EUPoMS at stake.

In the revised EUPoMS, the authors first present a conceptual framework for assessing impacts of flower resource density on assessments of pollinator abundance sampled with pan traps. The authors then collate several datasets that they use for their analysis. Similar to the conceptual framework, which contains strong assumptions about true pollinator abundance in relation to local floral resource density, and which lacks any citations to published supporting evidence, the data acquisition process provided by the authors is also incomprehensible. It remains unclear how the authors arrived at their initial set of candidate studies. The authors discarded more than half of the candidate studies before analysis, without any explanation. Out of 13 studies considered in the analysis, only a single transect walk dataset has been published so far (Kovács-Hostyánszki et al. 2017). In addition, the authors mislead the readers by using citations for the majority of studies (e.g., Hevia et al. 2016, Hevia et al. 2021, Torné-Noguera et al. 2014) even though their associated datasets have not been published. These datasets should have been declared as "unpublished data", like the majority of the datasets used in the analysis. In our opinion, the authors provide an unconvincing example of data collation in terms of transparency and reproducibility, the quantity of the data seems to be insufficient, and data quality cannot be judged due to dataset inaccessibility.

In addition to the data collation process, data manipulation before analysis raises serious questions about the meaningfulness of the results. The authors aggregated spatial replicates within study sites. This approach is likely to obscure a potential relationship between bee samples and floral resources at the local scale (i.e., the direct vicinity around pan traps), neglecting an important part of the assumed bias in bee sampling (experimentally addressed in Westerberg et al. 2021, reviewed in Krahner et al. 2024).

For both pan-trap and hand-netting studies, the authors converted bee abundance prior to the analysis. While it is clear that these conversions were conducted to account for differences in sampling effort, such conversions likely fail to account for a major part of differences in sampling design among studies. Such differences may arise, for example, from observer bias in transect walks (Krahner et al. 2021), pan trap size (Wilson et al. 2016, Krahner et al. 2025), and other aspects of pan trap design (reviewed in Krahner et al. 2024). For the few published studies used, method details are often lacking (e.g., no information on pan trap size and relative position to the flowering stratum provided by Hevia et al. 2016 and Hevia et al. 2021). Therefore, the readers are unable to assess the similarity of the methods used in the different studies. Differences in methodology likely exist with regard to the floral surveys conducted in the 13 studies, as this is a common phenomenon when comparing such studies (systematically reviewed for pan trap studies in Krahner et al. 2024). Altogether, the authors' effort to harmonize the data seems to be inappropriate for a sound combined analysis, judging from the little information we have about the used datasets.

In conclusion, while we are aware of the advantages and disadvantages of each monitoring method (Klaus et al. 2024) and do not argue here in favour of a particular sampling methodology for estimating true bee activity density, we find the authors' approach to justify the exclusion of pan traps from the EUPoMS Core Scheme unconvincing. A published guidance document developed in association with the EUPoMS will greatly impact bee monitoring programs across Europe and beyond - even more so when it is authored by leading experts in the field of pollinator research. We consider it essential that the authors will make an effort in the near future to catch up on explaining their decision to the scientific community, providing details about the underlying studies regarding comparability, and supporting their conceptual framework with scientific evidence. This will ensure that pollinator relevant policy making processes are transparently guided by evidence-supported expert opinion, securing public trust in the scientific integrity of the EUPoMS.

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Author contribution

Concept and design AK, data collection AK, data analysis AK, writing AK, ACD, TJ, FK, OL, SP & JP, edits and approval for publication AK, ACD, TJ, FK, OL, SP & JP.

Disclosure statement

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