



Gardening for pollinators? Unveiling garden owners' awareness and their pollinator-friendly practices

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Royal Entomological Society

Student Forum 2024

Urban ecology – Domestic garden – Insect-friendly gardening – Environmental consciousness – Sustainable gardening

INTRODUCTION - The increase of anthropogenic activities, and particularly the expansion of human-altered areas, threaten wild pollinators and disrupt their essential ecological interactions, thereby impeding key ecosystem services, such as pollination. To avert irreversible consequences, there is a global imperative for well-planned and sustainable urban environments which parsely focuses on **improving the value of domestic gardens for maximising both biodiversity benefits and human well-being**.

METHODS - We examine the interplay between pollinator-friendly gardening practices and garden owners' awareness of insect pollinators in a questionnaire-based study conducted in Hungary between October 2022 and June 2023.

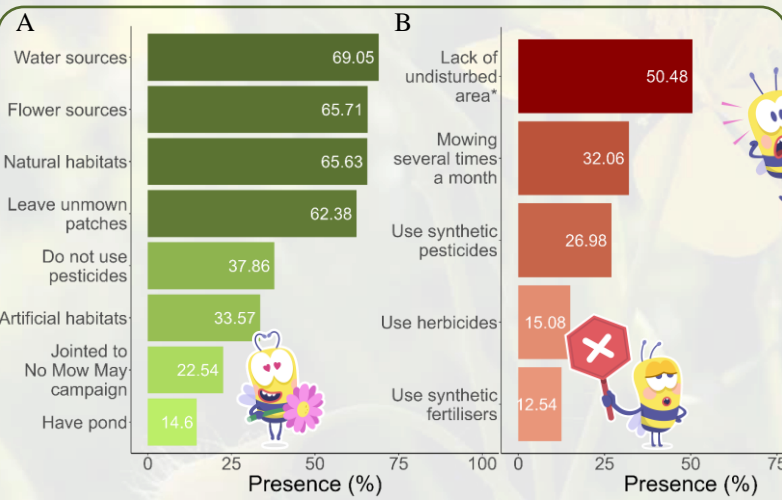


Fig. 1: Presence (%) of the **biodiversity-positive (A)** and **biodiversity-negative (B)** gardening practices among respondents. Since the question of whether respondents had undisturbed areas (*) the 'no' answer was considered as a biodiversity-negative practice, in this figure, the percent of 'no' answers is shown.

RESULTS - Pollinator-friendly garden activities were widespread among garden owners (n = 1260), but a **lack of undisturbed areas in domestic gardens, mowing several times a month and a ubiquitous pesticide** use were also present (Fig. 1). **Bumblebees and butterflies** were the **most commonly seen pollinator groups** in these gardens, while hoverflies were reported by only 66.4% of the respondents. Garden owners considered **the spread of invasive species, habitat loss in urban areas, and the widespread use of pesticides as the foremost threats to wild pollinators**, and only 29% thought that competition with honeybees is a significant factor (Fig. 2). While **86.4% of respondents did not use citizen science-based biodiversity reporting platforms**, 62.9% expressed willingness to participate in a garden network focused on maintaining biodiversity.

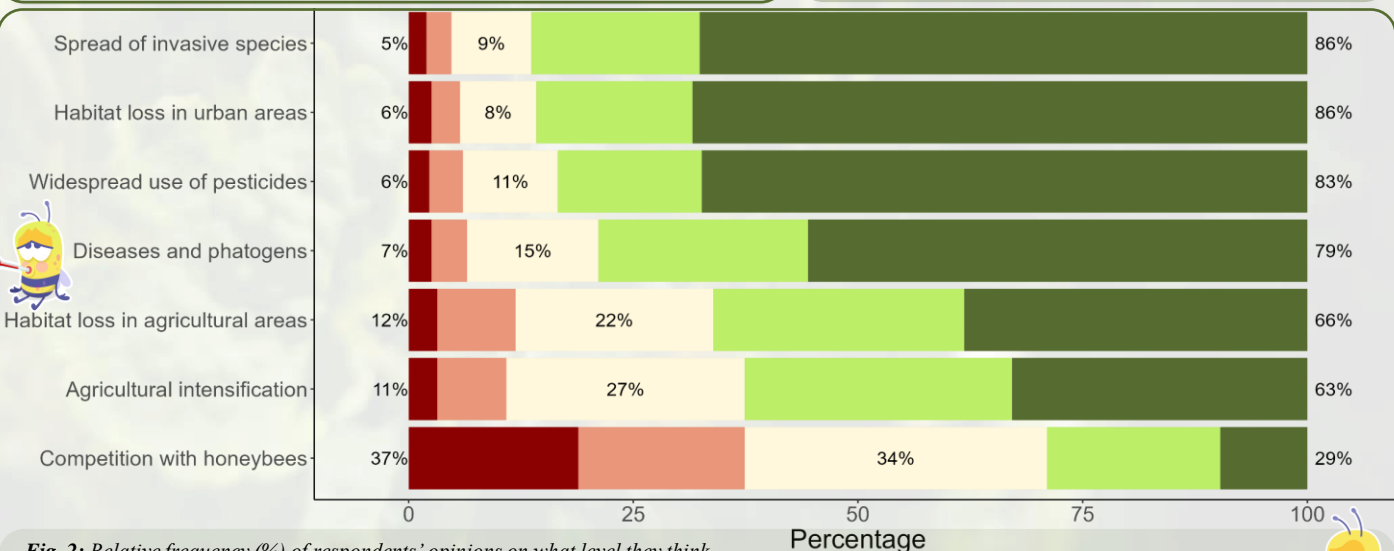


Fig. 2: Relative frequency (%) of respondents' opinions on what level they think the listed factors **threaten wild pollinators**. The response is colour-coded: **Not at all**, **Negligible**, **Moderately important**, **Important**, **Crucial**.

CONCLUSION - Our results show Hungarian garden owners' **efforts to support pollinators**, alongside persisting conventional gardening practices and limited awareness of citizen science initiatives. Furthermore, our findings underscore the unintended creation of **ecological traps** in domestic gardens due to the **intensive use of pesticides**. Effective knowledge transfer is essential for garden owners to grasp their garden ecosystems' complexity and adapt their gardening practices accordingly, ensuring a suitable habitat for pollinators.



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