

Heavy metal pollution causes severe declines in wild bees

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A red mason bee female feeds on ragged robin. Credit: Hajnalka Szentgyörgyi

Wild bees are important pollinators and numerous studies dealing with pollination of wild plants and crops underline their vital role in ecosystems functioning. While honey bees can be easily transported to various location when needed, wild bees' presence is dependent on the availability of high quality semi-natural habitats. Some crops, such as apples and cherries, and many wild flowers are more effectively pollinated by wild bees and other insects rather than managed honey bees.

Although heavy <u>metal pollution</u> is recognized to be a problem affecting large parts of the European Union, studies giving insights into their effect on wild bees are scarce. Researchers from Poland and the UK



have conducted a study showing a decline in wild bee communities caused by <u>heavy metal</u> pollution. The experiment was carried out on a number of contaminated sites along gradients of heavy metal pollution from smelters in Poland and UK.



This is a view of the Boleslaw mine and metallurgical plant in Bukowno, Poland. Credit: Michał Woyciechowski

The results clearly show that the most polluted sites had no, or only single wild bees, in artificial nests, whereas in unpolluted sites, the same nests contained 4 to 5 different species of wild bees, with up to ten individuals. Moreover, the proportion of dead bees increased with the level of heavy metal pollution, rising 20% in uncontaminated sites to 50% in sites with a high contamination. These findings highlight the negative impact of heavy metal pollution on the population of wild bees. These results highlight the need for the careful restoration of polluted areas, ensuring that flowering vegetation does not expose wild pollinators to unnecessary risks from heavy metals.

The study was published in the <u>Journal of Applied Ecology</u> and was provided within the frame of the <u>FP7 project STEP</u> – 'Status and Trends



of European Pollinators'.

More information: Moroń, D., Grześ, I. M., Skórka, P., Szentgyörgyi, H., Laskowski, R., Potts, S. G. and Woyciechowski, M. (2012), Abundance and diversity of wild bees along gradients of heavy metal pollution. *Journal of Applied Ecology*, 49: 118-125. <u>doi:</u> 10.1111/j.1365-2664.2011.02079.x

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