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Sabrina Rondeau

Category: Ecology & Environment

Essay title: *Digging below the surface – Hidden risks for ground-nesting bees*

Biography

Sabrina Rondeau received an undergraduate degree from the Université du Québec à Trois-Rivières, an MSc from the Université Laval, and a PhD from the University of Guelph. She is currently a postdoctoral fellow at the University of Ottawa. Her research explores the far-reaching consequences of human activities on wild pollinators, including agricultural intensification, pesticide use, and climate change.

Abstract

Current pesticide risk assessments for pollinators primarily focus on honeybees, which overlooks the risks posed by soil pesticide residues to over 80% of the world's 20,000+ bee species that nest or overwinter underground. I investigated the extent and impact of soil pesticide exposure on two ground-dwelling bee species: the common eastern bumblebee (*Bombus impatiens*) and the hoary squash bee (*Xenoglossa pruinosa*). In a multiple-choice experiment, we found that bumblebee queens tended to prefer pesticide-contaminated soils over pesticide-free options, which increased their risk of exposure. Subsequent studies revealed that soil pesticide residues impaired bumblebee colony establishment and affected squash bee reproduction and behavior. These findings underscore the urgent need to incorporate soil pesticide exposure into risk assessments for wild pollinators.