Does dim light at night impact the health of moths and other insects?

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Silk fibroin derived from silk moths is used to create nonstick surfaces with properties that surpass commercially available nonstick surfaces. Credit: Unsplash/CC0 Public Domain

Results from a new study published in the *Journal of Applied Ecology*

indicate that dim light pollution may have detrimental effects on insect populations and may explain part of the ongoing, large-scale insect declines around the world.

During the study, investigators raised the offspring of moths from urban and rural populations from North- and Mid-European countries and treated them with and without dim light at night. The researchers assessed the induction of diapause, a dormant state that is critical for survival through the winter.

Light treatment affected diapause overall, but more so in Mid- than in North-European populations. In fact, no Mid-European moths entered diapause when exposed to artificial light at night. The impact of light treatment occurred in both urban and rural populations, and there was a lack of urban adaptation in response to light pollution.

"For mitigating the adverse effects of human activities on insects, our results are promising in the sense that this is a factor that can be fairly easily tackled," said corresponding author Thomas Merckx, Ph.D., of Vrije Universiteit Brussel, in Belgium. "We show that moths living in both urban and rural settings are sensitive to even dim levels of light pollution. Thus, decreasing light pollution should be a key priority in protecting insects and in safeguarding the ecosystem services they provide us with."

More information: Dim light pollution prevents diapause induction in urban and rural moths, *Journal of Applied Ecology* (2023). DOI: 10.1111/1365-2664.14373

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