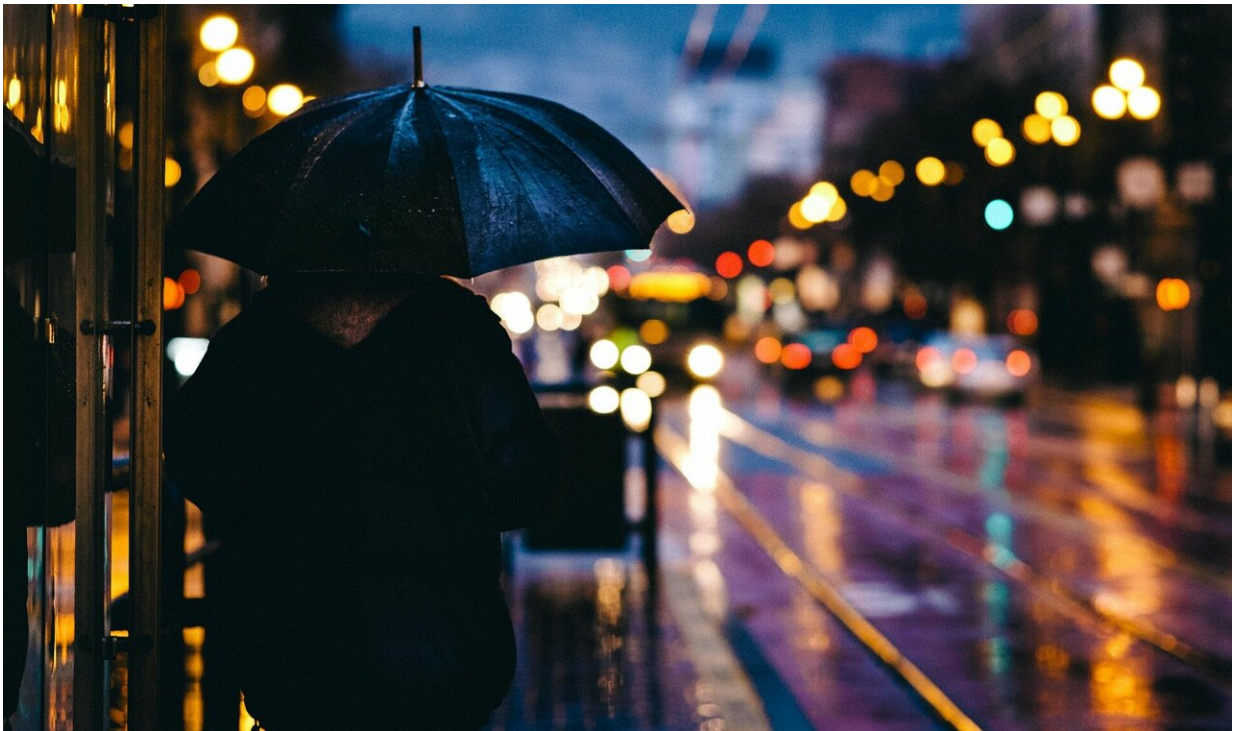


Ecological benefits of part-night lighting revealed

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Switching off street lights to save money and energy could have a positive knock-on effect on our nocturnal pollinators, according to new research.

A study, led by experts from Newcastle and York universities, has shown

that turning off the lights even for just part of the night is effective at restoring the natural behaviour of moths.

The important role moths play in the pollination of plants—potentially even including key food crops such as peas, soybean and oilseed rape—is often overlooked. But recent studies show that moths supplement the day-time work of bees and other pollinating insects.

Night-lighting disrupts nocturnal pollination by attracting moths upwards, away from the fields and hedgerows so they spend less time feeding and therefore pollinating. But in this latest study, published today in *Ecosphere*, the team found there was no difference in pollination success between part-night lighting and full darkness.

Dr. Darren Evans, Reader in Ecology and Conservation at Newcastle University, who supervised the study, said that at a time when local authorities are switching off the street lamps to save money, this study highlighted the environmental benefits of part-night lighting.

"Artificial [light](#) at night is an increasingly important driver of global environmental change and sky brightness is increasing by about 6% a year," he explains.

"Understanding the ecological impact of this artificial light on the ecosystem is vital.

"We know that [light pollution](#) significantly alters moth activity and this in turn is disrupting their role as pollinators. But what our study showed was that while full-night lighting caused significant ecological disruption, part-night lighting did not appear to have any strong effect on pollination success or quality."

Street light switch off

Ecological light pollution is increasingly linked to adverse effects on human health and wildlife. Disrupting the natural patterns of light and dark, artificial light "has the potential to affect every level of biological organisation," explains Evans, from cells to whole communities.

In the last decade, many local authorities have changed their street lighting regime in a bid to cut costs and save energy. This includes switching off or dimming the lights at certain times of the night as well as replacing the traditional high-pressure sodium (HPS) bulbs with energy-efficient light-emitting diodes (LEDs).

In the study, the team analysed the impact of a range of scenarios on the pollination of moth-pollinated flowers placed underneath [street lights](#). These included both types of lighting (HPS and LED), run either all night or switched off at midnight. Results were compared to pollination under natural darkness.

They found that regardless of the type of light, full-night light caused the greatest ecological disruption. There was no difference between LED and HPS bulbs in the part-night scenarios and in both cases, the disruption to the plants' [pollination](#) was minimal compared to full darkness.

Lead author Dr. Callum Macgregor, a Postdoctoral Research Associate from the University of York, said:

"Often, as conservationists, we have to make difficult trade-offs between development and environmental protection.

"However, our study suggests that turning off [street](#) lights in the middle of the night is a win-win scenario, saving energy and money for [local authorities](#) whilst simultaneously helping our nocturnal wildlife."

More information: Callum J. Macgregor et al, Effects of street lighting technologies on the success and quality of pollination in a nocturnally pollinated plant, *Ecosphere* (2019). [DOI: 10.1002/ecs2.2550](https://doi.org/10.1002/ecs2.2550)

Provided by Newcastle University

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