International Research Journal of Engineering Science, Technology and Innovation
Vol. 10(3) pp. 1-1, January, 2021
Available online http://www.interesjournals.org/IRJESTI

Editorial

Editorial Note on Artificial Light at Night on Diurnal Plant-Pollinator Interactions

Glory Thomas*

Department of Biotechnology, North-Western University, USA

E-mail: agriscience.7@gmail.com

EDITORIAL

Artificial light in the dark has rapidly spread round the globe over the last decades. Evidence is increasing that it's adverse effects on the behaviour, physiology, and survival of animals and plants with consequences for species interactions and ecosystem functioning. For instance, artificial light in the dark disrupts plant-pollinator interactions in the dark and this will have consequences for the plant reproductive output. By experimentally illuminating natural plant-pollinator communities during the night using commercial street-lamps we tested whether light in the dark also can change interactions of a plant-pollinator community during daytime. Here we show that artificial light in the dark can alter diurnal plant-pollinator interactions, but the direction of the change depends on the plant species. We conclude that the effect of artificial light in the dark on plant-pollinator interactions isn't limited to the night, but also can propagate to the daytime with thus far unknown consequences for the pollinator community and therefore the diurnal pollination function and services they supply.

A “luminous fog” of artificial light in the dark is enveloping the locations inhabited by humans, with about 18.7% of the world’s terrestrial surfaces (excluding Antartica) currently being exposed to it. Furthermore, the world experiencing direct emissions from artificial light sources is estimated to expand at about 2–6% per annum while already illuminated areas become brighter at an identical rate. Additionally to effects on the physiology and behavior of organisms with consequences for mortality, reproduction, species abundance, and community artificial light in the dark affects species interactions and ecosystem functioning. To date, most research on the impact of artificial light in the dark on species interactions has focused on altered foraging strategies of night-active predators, especially birds, bats and spiders. More recently also plant–herbivore interactions are found to be altered by artificial light at night, which may even be most pronounced in dark areas adjacent to artificially illuminated areas. Further, artificial light in the dark has been shown to disrupt nocturnal plant–pollinator interactions with negative consequences for plant reproductive output. Interestingly, also a positive effect of artificial light in the dark on the reproductive output has recently been reported, which suggests more complex indirect effects of artificial light in the dark, probably involving diurnal pollinator communities or other organisms like herbivores or predators. Nonetheless, by merging day- and night time plant–pollinator interaction networks, Knop showed that diurnal and nocturnal pollinator communities are linked during a way that they ought to favor the spread of a nocturnal perturbation to the diurnal community. However, we still miss evidence that effects of artificial light in the dark can actually spread to diurnal interactions.