## Artificial light at night as a new threat to pollination

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Pollinators are declining worldwide<sup>1</sup> and this has raised concerns for a parallel decline in the essential pollination service they provide to both crops and wild plants<sup>2, 3</sup>. Anthropogenic drivers linked to this decline include habitat changes, intensive agriculture, pesticides, invasive alien species, spread of pathogens and climate change<sup>1</sup>. Recently, the rapid global increase in artificial light at night<sup>4</sup> has been proposed to be a new threat to terrestrial ecosystems; the consequences of this increase for ecosystem function are mostly unknown<sup>5,  $\frac{6}{2}$ </sup>. Here we show that artificial light at night disrupts nocturnal pollination networks and has negative consequences for plant reproductive success. In artificially illuminated plant-pollinator communities, nocturnal visits to plants were reduced by 62% compared to dark areas. Notably, this resulted in an overall 13% reduction in fruit set of a focal plant even though the plant also received numerous visits by diurnal pollinators. Furthermore, by merging diurnal and nocturnal pollination subnetworks, we show that the structure of these combined networks tends to facilitate the spread of the negative consequences of disrupted nocturnal pollination to daytime pollinator communities. Our findings demonstrate that artificial light at night is a threat to pollination and that the negative effects of artificial light at night on nocturnal pollination are predicted to propagate to the diurnal community, thereby aggravating the decline of the diurnal community. We provide perspectives on the functioning of plant-pollinator communities, showing that nocturnal pollinators are not redundant to diurnal communities and increasing our understanding of the human-induced decline in pollinators and their ecosystem service.

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