Light pollution transforming insect communities

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Falmouth. Photo by Kevin Murphy.

(Phys.org) -- Street lighting is transforming communities of insects and other invertebrates, according to research by the University of Exeter. Published today in the journal *Biology Letters*, the study shows for the first time that the balance of different species living together is being radically altered as a result of light pollution in our towns and cities.

Believed to be increasing by six per cent a year globally, artificial lighting is already known to affect individual organisms, but this is the first time that its impact on whole communities has been investigated.

This study shows that groups of invertebrates living near to artificial lights include more predators and scavengers. This could be impacting on the survival rates of different species, having a knock-on effect on birds and mammals that rely on these species for food. The effects could

be affecting entire ecosystems and even humans.

The research team based their study in the market town of Helston in West Cornwall. They placed pitfall traps directly under and between street lamps that were 35 metres apart for a number of days and nights. This allowed them to compare, not only results for day and night, but also differences between areas under and away from street lights.

They collected 1,194 individuals covering 60 species. They discovered that total numbers were more abundant under street lights, where they also found more predatory and scavenging species, such as ground beetles and harvestmen. This was the case during the day, as well as at night, suggesting that the effect on communities is ongoing.

Lead author Dr Tom Davies of the Environment and Sustainability Institute at the University of Exeter's Cornwall Campus said: "Our study shows that light pollution could be having a dramatic effect on wildlife in our towns and cities. We need to be aware of how the increase in artificial lighting is impacting on the delicate ecosystems on which we all rely. Our research shows, for the first time, the changes that light pollution is making to entire communities of invertebrates. We now need to examine what impact this is having on other communities and how this may be affecting important ecosystem services and whether we should change the way we light urban spaces."

Provided by University of Exeter