

## **Effects of light pollution on insects.**

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The term „light pollution“ describes the excessive or misdirected use of artificial light (usually outdoors). It can have serious environmental consequences for wildlife and humans. Over the last decades, light pollution has increased as a consequence of urbanization. Previous studies support the negative impact of artificial lighting on nocturnal insects. Once attracted to the light, insects become easy prey or get burned while flighing against the lamp. During a period of three weeks, five different types of modern commercial street lights where tested in relation to insect attraction. Therefore the lamps where incorporated in special light traps and placed along a street in a mountain region in Vorarlberg, Austria. While all insects where counted and categorized in different orders, special emphasis was placed on the nocturnal Lepidoptera. With an estimated number of 20000 insects from 13 different orders, the study showed high differences between LED and gas discharge lamps. The metal halide lamp had the highest insect attraction with a total number of 6278 individuals, while a LED lamp gave an output of only 230 insects in 9 days. These results showed the enormous impact of streetlights on insect activity, which is one proposed reason driving insect declines. It also shows that depending on the lamp type, artificial light can have a very high attraction on insects and can be minimized by using the appropriate lamp.