

Adrian Garcia

ENGL 21003

27 April 2022

Light pollution and Habitat Disruption on Nocturnal Insects: A Literature Review

Abstract

Light pollution refers to the unnecessary or excessive outdoor illumination at night. It affects nocturnal organisms by forcing them to translocate to places that receive more natural light. Artificial light not only disrupts the living environment of these organisms, but it propels them to abandon their natural habitat. Since specific processes and activities are required for natural habitats to function successfully, the purpose of this literature review is to specify the different activities disrupted by light pollution and to discover how these disruptions influence the translocation of nocturnal insect communities. This research is necessary to prevent biodiversity loss and to generate possible solutions for the future.

Introduction

The most common type of artificial light used for streetlamps is low-pressure sodium light (with a bright yellow color), which has a narrower-spectrum lighting and better transmission than LED (light-emitting diode) light (Douglass H. et al. 2021). However, LED lights have higher energy efficiency and illuminate a greater area (Bennie et al. 2018; Douglass H. et al. 2021). As more people implement them, natural habitats are exposed to more artificial light. Moreover, research has shown that light pollution impacts inter and intra relationships such as food attainment and mating activities, predator-prey relationships, and trophic equilibrium in nocturnal insects' communities very differently (Bennie et al. 2018; Firebaugh and Haynes 2019;

Douglass H. et al. 2021). These effects originate from the varying wavelengths emitted by modern lighting technology (Douglass H. et al. 2021). Current research towards understanding light pollution's different effects on biodiversity demonstrates the importance of diminishing natural habitat interference by minimizing light pollution.

Inter and Intra relationships (Mating activities and food attainment)

Prey-Predator relationships

Trophic levels

Conclusion