

Light Pollution: A Threat to Bats

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Introduction

Product: Pamphlet on how bats are impacted by light pollution

Audience: Adult Environmentalists

Goal: Raise awareness among adults who are interested in supporting the environment and might not be aware of the effects of light pollution

Plan: To hand them out at environmental conventions

Measure Success: the percentage of pamphlets that were collected by others

Method

Looked at other pamphlets (inspired by a more concise approach)

Researched the material

Assembled the pamphlet in Canva

Research

Analyzing different sources on:

- How light pollution impacts bats?
- Why bats are important for the ecosystem?



Findings

Light pollution interferes with bat mating rituals and communication

Bats decreased their activity when the lights were on

Excessive light can deter bats from choosing a suitable habitat

Product



Habitat Avoidance

Bats instinctive behavior depends on avoiding lit areas, even if the habitat is the most suitable. This forces them to relocate to habitats that are not ideal in resources. This is increasing habitat fragmentation for the different bat populations.



Disruption of Mating Behaviors

Light pollution is interfering with bats attracting mates and performing mating rituals

This disruption leads to lower reproductive success and declining of bat populations

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Light Pollution: A Threat to Bats



Did you know bats are an important pollinator?



Do you know that bats help the ecosystem by being a natural pest control for insects?

With light pollution, increasing it is impacting the bat population and reducing their beneficial impact on the environment...

Product



INTRODUCTION

Light Pollution has become a significant environmental issue for bats. The increase in use of artificial lights are disrupting these mammals behavior, habitat, and threatens their population.

Disruption of Feeding Behaviors

Artificial lights impact the natural behavior on how bats locate and capture their food

Ex. Insects are clustering these lights, which bats depend on darkness to hunt, so this increases the time and energy bats need to use

WHY IT MATTERS?

Bats are essential for the balance of ecosystem as they are pollinators, and are natural pest control.



Predation Risk

More lights are causing bats to be more visible to their natural predators.

Bats are now forced to go into lit areas for food and shelter now.



Research for Paper

In depth analysis on literature reviews

Comparing the research studies to one another

Statistical Findings

“Big brown bats also decreased their activity when the lights were on, with 48–75% as many recordings of this species at the stations when the lights were on as opposed to off” (Pope, 2024)

“Dimming Led Streetlights To 25% Of Their Typical Intensities May Also Be Effective For Maintaining Activity Levels Of Myotis Bat Species That Typically Avoid Light” (Voigt et al, 2021).

Lessons Learned

Overall information on light pollution and the challenges that come with it, from the impacts it is causing and the hardships in finding solutions to improve this situation.

Additionally, delving deeper into specific wildlife species being impacted, such as bats, demonstrates how one impact can lead to other environmental problems. Bats are essential for biodiversity and the entire ecosystem, and a decrease in their populations can result in more devastating effects.

Resources

Pope, K. (2024). Bat Conservation International. (n.d.). New paper suggests light pollution limits bat habitat.

Retrieved from

<https://www.batcon.org/new-paper-suggests-light-pollution-limits-bat-habitat/>

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Mariton, L., Kerbirou, C., Bas, Y., Zanda, B., & Le Viol, I. (2022). Even low light pollution levels affect the spatial distribution and timing of activity of a “light tolerant” bat species. *Environmental Pollution*, 305, 119267.

<https://doi.org/10.1016/j.envpol.2022.119267>

DDCEW. (2024). *Reducing the effect of light pollution on wildlife - Bats*. (2023, February 16). DAWE.

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Voigt, C. C., Dekker, J., Fritze, M., Gazaryan, S., Hölker, F., Jones, G., Lewanzik, D., Limpens, H. J. G. A., Mathews, F., Rydell, J., Spoelstra, K., & Zagmajster, M. (2021). The Impact Of Light Pollution On Bats Varies According To Foraging Guild And Habitat Context. *BioScience*, 71(10), 1103–1109. <https://doi.org/10.1093/biosci/biab087>

Thank You!
