Nocturnal animals are disappearing; what are the reasons?

The problem of artificial light pollution caused by human activities is a major issue that directly impacts the survival of these species.

On the planet, there are hundreds of thousands of animal species that are primarily nocturnal, sleeping during the day to reduce the risk of predation, or due to excessively hot daytime temperatures and competition from other animals; these are known as nocturnal animals. Most nocturnal animals rely on moonlight and starlight to find food, shelter, or mates in the dark, and artificial light pollution from human activities is a major problem directly impacting the survival of these species.

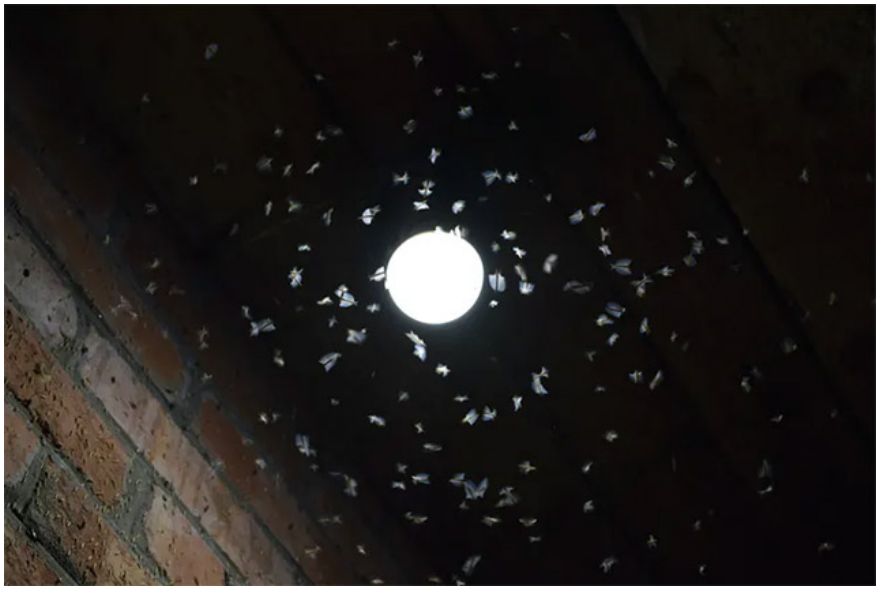
What is light pollution?

According to the scientific definition, light pollution is a form of environmental pollution that occurs when artificial light overwhelms natural light at night, causing discomfort. In other words, it is a phenomenon that occurs when humans create excessive amounts of light. This can have harmful effects on health, obscure the light of stars, affect astronomical observations, waste energy, disrupt the lives of wildlife, and destroy the ecological balance.

According to recent statistics, approximately 80% of the global population currently lives in areas polluted by artificial light. One-third of humanity can no longer see the Milky Way – the galaxy containing our solar system . When it comes to health, nighttime light pollution is linked to sleep disorders, depression, obesity, and even some types of cancer.

However, the impact of light pollution on humans pales in comparison to the effects on nocturnal animals. Studies have shown that most nocturnal animals are extremely sensitive to artificial light; they will change their behavior even with only minor disruptions in nighttime light levels, often in a negative way.

For example, beetles will become almost completely disoriented when flying through areas of light pollution that prevent them from seeing the starry sky. Additionally, artificial light can alter how nocturnal species interact with each other. Insects like moths are more vulnerable to bats because artificial light reduces their ability to identify predators.



Notably, light pollution affects not only terrestrial species but also some aquatic species. For example, artificial lighting from coastal cities, promenades, boats, and harbors disrupts the reproductive activities of clownfish, attracting some species and making them prey for others.

When streetlights emit light upwards, it is scattered in the atmosphere and reflected back to the ground. Anyone in the countryside at night will notice this effect: bright patches of light in the sky above a distant city or town. This type of light pollution is called artificial skylight. It is about 100 times dimmer than direct sunlight, but it is extremely common and significantly affects the lives of several nocturnal aerial species such as birds, butterflies, and bats.

The use of the moon and stars as compasses is a common characteristic of many marine and terrestrial animals, including coastal crustaceans, seals, birds, reptiles, amphibians, and insects. Therefore, light pollution increasingly disrupts the life processes of these species, causing population decline and consequently disrupting the ecological balance.

There is evidence that the Earth is becoming brighter at night. Between 2012 and 2016, scientists discovered that the area of ??artificially illuminated outdoor spaces on Earth increased by 2.2% each year.

In the future, scientists will need to intensify research to clarify how light pollution is affecting both terrestrial and aquatic ecosystems, focusing on how it impacts animal development, interspecies interactions, and even molecular-level effects. Only by understanding how light pollution affects nocturnal life can we find the most appropriate solutions.

1. Niue is the first country on the planet free from light pollution.