How Light Pollution Harms Maryland Wildlife

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International Dark Sky Week in April encourages people to consider ways to avoid artificial light use at night to help birds migrate and natural ecosystems thrive

A fox walks in the evening. Light pollution can cause foxes to avoid certain areas, but for other animals light pollution can be more deadly. Photo by Dane Madsen, submitted to the 2020 DNR Photo Contest.

Light pollution, excessive human-produced light during the night, makes it harder to see the stars, but it's also a hazard to wildlife, from birds to sea turtles.

April 13 marks the start of International Dark Sky Week, when scientists and activists remind people to help limit light pollution.

Due to the population density in the state, light pollution is significant in Maryland. Ambient light is the highest around cities, though even more remote sources of light can affect the surrounding nighttime environment. For many animal species in Maryland, light pollution can be a disruption—or a matter of life and death.

Birds are often the most affected by light pollution. Maryland is part of the major migration route called the Atlantic Flyway, and migrating birds are particularly at risk from light pollution. While we may think of many migrating birds as being active during the day, most songbirds and shorebirds are migrating at night, said Kevin Stohlgren, Maryland's state zoologist.

"Light pollution is disorienting—it can cause birds to make collisions from reflections off of glass, or make birds lose energy on that important route," said Stohlgren, of the Wildlife and Heritage Service in the Maryland Department of Natural Resources.

Up to 1 billion birds die from collisions with buildings every year in the U.S., and light pollution can cause migrating birds to veer off course into densely populated areas, where strikes are more likely to occur.

Because many collisions happen during migration months, groups including DarkSky International and the National Audubon Society encourage “lights out” events to limit nighttime light use during the spring and fall migrations. Lights Out Baltimore asks residents and businesses in Maryland’s largest city to turn off lights to protect birds, in addition to coordinating squads of volunteers to rescue injured birds.

Artificial light also disturbs bats. In addition to light pollution disrupting the foraging behavior of the nocturnal fliers, research has found that human-produced light limits habitat available to bats, including little brown bats and big brown bats, two species that live in Maryland.

For other animals, light pollution often acts as either an attractive or repellant force, drawing animals closer or causing them to leave an area. Many prey species might avoid well-lit areas entirely. But fish often come closer to light sources, where they can find more invertebrates to eat but are also more vulnerable to predators.

Many insects are attracted to light as well. Max Ferlauto, Maryland’s state entomologist, said light pollution disrupts feeding and mating for insects, especially moths and fireflies. Light also makes them easier prey for spiders and other predators. When home gardens are lit at night, it makes these areas less suitable for moths, which are important nocturnal pollinators.

Moths, like this luna moth, are often nocturnal and their behavior is disturbed by light pollution. Though luna moths are not considered pollinators, many types of moths serve an important role in pollinating plants. Photo by Tim Ray, submitted to the 2019 DNR Photo Contest.

Unfamiliar light in an environment also confuses many animals. Light sources near beaches can distract sea turtles, both nesting mothers and newly hatched juveniles—though most sea turtles nest further south than Maryland.

Though light pollution is a pervasive issue, Stohlgren said it’s also something everyone can take action on—by turning off the lights.

“It’s one of those easy things everyone can do to make a difference,” he said. “A big portion of strikes and negative effects of lights come from just residential houses. Turning your lights out or making your home more wildlife friendly has low or no cost and requires little effort, but it’s a great way to participate in conservation.”

Experts recommend limiting outdoor lighting, in addition to unnecessary indoor lighting that can leak outside. DarkSky International also suggests shielded light sources, dimmers, motion sensors, timers, warm lights, and other tips for reducing light pollution.

Less light pollution benefits humans as well as animals. Light pollution affects human health, from sleeping disorders and disruptions of circadian rhythms. It also affects our ability to see and appreciate the night sky.