Insect and bird behavior is influenced by LED lights

Carolyn Mathas - September 20, 2016

Streetlights used to be the water cooler of the mosquito set. It seems, however, that as LEDs replace conventional mosquito-attracting bulbs, the insects are not hanging out around street lights after dark as they did for so long, which means that some of the local bat community is going without their illuminated evening meal. Actually, what scientists are finding out is that light-sensitive bats benefit, while opportunistic bats lose their midnight snack.

A mosquito/bat/LED study was recently performed by Christian Voight and Daniel Lewanzik from the Leibniz Institute for Zoo and Wildlife Research. It’s the broad wavelength spectrum, and specifically those in the ultraviolet range of high-pressure mercury bulbs, that attract the insects. Since new LEDs are UV lightless, they’re not the gathering place of old.

The study involved installing bat recorders on 46 street lamps in multiple German cities. Bats were detected by echolocation. Some bats dropped off by almost half with the installation of LEDs, but light sensitive bats that are typically attracted artificial light showed up 4.5× more often. So, it seems, the menu just changed.

Bats aren’t the only ones affected. According to a 2014 study published in the Ecological Applications journal from the Ecological Society of America (ESA), that short wavelength "blue" light can influence animal behavior. In this case, the study concluded that LEDs attracted almost 50% more nocturnal invertebrates than other light sources. As a result, invasive species could be drawn to urban areas, ports, and commercial shipping boats.

Just last year, yet another study concluded that artificial light, specifically LEDs, altered bird behavior so that there could be potentially negative effects on biorhythms, daily activity, and reproduction. The behavior of some birds in the study included sleeping less, waking earlier, and leaving nest boxes more often. In fact, light has such a strong biological impact that at night it can cause foraging; sleep; migration; immune response; cortisol, testosterone and melatonin level changes; and glucose metabolism effects.

I can see eyes rolling and deep sighs of disapproval for more studies that beg the question, “Is it important to know?” In this case, yes, it actually is. The data gathered in studies such as these can be relative to studies involving the human species as well. However, even at the insect and bird level, the data is important. How do we increase egg production? Why are insects moving in and
taking hold in certain areas and not others? Bats and frogs are indicative of the health of rural areas—and messing with their food source might be an important factor.

I think it’s fascinating. Do you?

Also see:

- Another advantage of LED lights: They don’t attract bugs, and here’s why
- LED street lights: Taking a step toward smarter cities
- LED Street Lighting helps limit Greenhouse Gas Emissions
- Do LED streetlights look like a prison yard searchlight?