



BLUE PAPER

Light Pollution / Over-lighting

Winter, 2019
Blue Paper No.5_a

The Clear Lake Township Land Conservancy (CLTLC), in its mission to preserve, protect, and manage the natural environment of the watershed, is concerned with the implications of light pollution or over-lighting on the overall health of our environment.

WHAT IS IT?

“Over-lighting” is any excessive, artificial light that is unnecessary and/or detrimental to human health and the health of the natural environment. When an abundance of light is applied to darkness, the result may also be defined as “light pollution.” Other terms used for excessive artificial light include night lighting, light trespass, artificial lighting, light glare, and sky glow. Light pollution is caused as a result of industrialization and modernization. The energy efficiency of LEDs could actually be making things worse – people are now lighting up places that were never illuminated before.

WHY SHOULD WE BE CONCERNED?

Currently, two-thirds of the U.S. population has already lost the ability to see our Milky Way galaxy with the naked eye. According to the International Astronomical Union, 99% of the population of the European Union and the United States (excluding Alaska and Hawaii) live in areas where the night sky has reached the threshold for light-polluted status.

Scientific research has documented several negative effects of over-lighting. Artificial light has three general effects on wildlife, as it:

1. Attracts some organisms (moths, frogs, sea turtles), resulting in them not being where they should be, concentrating them as a food source to be preyed upon, or just resulting in a trap which exhausts and kills them.
2. Repels some organisms, excluding them from habitat where they might otherwise live, making it a form of habitat loss.
3. Alters the day/night patterns, resulting in too little sleep, insufficient down time for the body to repair itself, and upsetting reproductive cycles.

Specifically, light pollution has interrupted natural navigation patterns and disorients birds during migration. Baby sea turtles are often unable to find their way to the ocean after hatching because of over-lighting. Reptile and amphibian reproductive cycles have been disrupted, and insect and plant populations have been reduced by over-lighting. Research documents that over-lighting also produces negative effects on human health including sleep disturbances, depression, and a significant correlation with certain cancers and other disease processes.

Inappropriate, wasted light has economic impact such as higher utility costs while causing light trespass when the lighting spills to areas where it is unwelcomed or unwanted. Sky glow also limits recreational use and enjoyment of the night skies. Some young people have never seen the Milky Way or experienced the wonder of a cloudless dark night.

HOW DO WE ADDRESS THESE CONCERNS NOW AND FOR FUTURE GENERATIONS?

CLTLC considers its primary opportunity for this issue to be the education of the community we serve about over-lighting and light pollution and the risks these bring for the community, individuals and the natural environment for which we are stewards. As part of its stewardship, CLTLC organized a free, public program “Star Light, Star Bright” in August 2019, offering attendees the opportunity to get reacquainted or familiarized with the night sky through guided observation and folklore. Education is proving to be a powerful method of keeping our community in touch with the importance and pleasures of night skies.

Through programs like this, CLTLC encourages individuals to:

- understand what over-lighting and light pollution have done to the night and night skies, human health, and the health of wildlife,
- consider individual steps such as reducing their personal use of indoor and outdoor lighting to prevent over-lighting, and
- consider other steps to restore a more balanced and less-intrusive relationship of artificial lighting with the darkness of the night, such as making sure outdoor lights are directing light downward instead of up through the use of shields, installing control switches to turn outside lights off, and closing window blinds and shades at night to keep light inside.

Additional information regarding proper types and placement of lighting fixtures can be requested from governmental agencies or utility companies in our community to promote safety, reduce glare, direct light down, and reduce the amount of wasted light contributing to sky glow.

CLTLC endeavors to be a good steward of our natural resources, including water, our earth, and our sky. Helping our community to be knowledgeable about trends, risks and opportunities that affect our natural resources directly supports our mission.

Resources on this topic can be found at:

<http://www.darksky.org>

https://en.wikipedia.org/wiki/Light_pollution

<http://cescos.fau.edu/observatory/lightpol-environ.html>

<https://photopills.com/articles/how-plan-milky-way-using-augmented-reality>

https://www.calendar-12.com/moon_phases

<https://nightsky.jpl.nasa.gov/clubs-and-events.cfm>

<https://cleardarksky.com>

Chicago Tribune Article posted Nov. 20, 2019:

<https://www.chicagotribune.com/entertainment/museums/ct-ent-chicago-night-sky-light-pollution-adler-planetarium-ttd-1121-20191120-tqkbntaaenbudf2gnaprwkiv5a-story.html>

Other organizations and sources:

International Dark Sky Association, Globe at Night, Pub Med Central, National Institute of Health, Places Journal, International Astronomical Union, National Geographic, Del Mar Fans and Lighting

iPhone app:

Sky Guide

Android app:

SkyView

Two dark sky viewing sites:

Potawatomi Wildlife Park, 15998 State Road 331, Tippecanoe, IN 46570, Lake Hudson Recreation area, [S.E. Michigan] Route M-156, 49235. See Dark-Sky site directory for more details.