

## Conservation Conversations: Light Pollution

“It was a dark and windy night...” I always started my bedtime stories for Zoe this way. But this particular night I noticed that it wasn’t dark—at least not as dark as I was accustomed to. “Zoe, hang tight, I’ll be right back to continue the story.”

I went outside to investigate. Someone must’ve replaced a light bulb in a neighbor’s garage floodlight with enough wattage to light Veteran’s Field. The light bathed not only their yard, but ½ of ours and the surrounding night sky in bright incandescent light. “Yikes! Hand me my BB gun?!” I shouted to the dog.

Just then Bob, a good friend, let himself in through the screen door and reminded me I’d invited him for coffee and pie. I’d forgotten, and the pie was gone. “What are you looking for?” he asked. I told him about the light and my solution. He wisely suggested that I speak with my neighbors first and explain a little about light pollution, the luminous orange glow that haloes cities and suburbs, even Cape Cod. “Here’s what you tell them,” he said.

“Turning off the lights and using low wattage bulbs not only saves energy, but it can help save wildlife as well. Light pollution threatens wildlife by disrupting biological rhythms and otherwise interfering with the behavior of nocturnal animals. Animal species have evolved on this planet with biological rhythms; and lighting up the night has profound effects.”

“Artificial lighting seems to be taking the largest toll on bird populations. Nocturnal birds use the moon and stars for navigation during their bi-annual migrations. When they fly through a brightly-lit area, they become disoriented. The birds often crash into brilliantly-lit broadcast towers or buildings, or circle them until they drop from exhaustion. Over 450 bird species that migrate at night across North America are susceptible to collisions with night-lit towers. Sometimes whole flocks collide with over-lit structures. In 1981, over 10,000 birds slammed into floodlit smokestacks at a power generating plant near Kingston, Ontario. “

“Light pollution also endangers sea turtles. Bright lights nearby discourage females from coming ashore to nest. Newly hatched turtles need a dark night sky to orient them toward the sea, but artificial lights behind beaches lure them away.”

“Many nocturnal creatures like snakes, salamanders, frogs, will restrict their hunting and foraging for food under a full moon to avoid predators. Artificial light never allows them the darkness they need to thrive. Some tree frogs stop calling in brightly-lit areas. If the males aren't calling, they're not reproducing. Most smaller carnivores and rodents, 20 percent of primates, and 80 percent of marsupials are nocturnal. Bats, fireflies, the list goes on!” Bob was on a roll!

“Goodness, Bob, you are a source of information! How so?” I interrupted.

“National Geographic devoted an issue to the subject. I found it fascinating. Did you know that there is a movement to declare dark skies as a Natural Resource? The International Dark-Sky Association estimates that one-third of all lighting in the U.S. is wasted; and a movement is under way to turn off the lights, or at least turn them down, for the sake of all creatures that frequent the night. For example,

coastal counties in Florida have passed ordinances that residents turn off beachfront lights during turtle nesting season. In Toronto businesses and home owners are encouraged to dim down or turn off excess lighting during migration season.”

"It's not that we don't expect animals to be affected by human activities—but it is our responsibility to minimize their mortality. The good news is that unlike most ecological problems, light pollution has a solution: At the flick of a switch, this one could disappear."

“Bob, so ah, what about that floodlight? They may need some outside lighting. What do your sources say *we* should all do?” I was now concerned about more than just that garage light.

“Glad you asked,” he said. “Here's the basic rule of thumb: If you can *see the bright bulb* from a distance, it's a *bad light*. With a good light, you see *lit ground* instead of the dazzling bulb. "Glare" is light that beams directly from a bulb into your eye. It serves no purpose; it hampers our vision and affects wildlife.”

“And here's what you and your neighbors should do:

**1. Use only the light needed.** Don't over-light, and don't spill light off your property. Remember that a full Moon can make an area quite bright. Yet some lighting systems illuminate areas 100 times more brightly than the full Moon! More importantly, by choosing *properly shielded* lights, you can meet your needs without bothering neighbors or polluting the sky.

**2. Aim lights down.** Choose "full-cutoff shielded" fixtures that keep light from going uselessly up or sideways. Full-cutoff fixtures produce minimum glare; and they create a pleasant-looking environment.

**3. Install fixtures carefully** to maximize their effectiveness on the targeted area and minimize their impact elsewhere. Proper aiming of fixtures is crucial. *Most are aimed at too high an angle.* Try to install them at night, when you can see where all the rays actually go. They can illuminate your target with a low-wattage bulb just as brightly as a wasteful light does with a high-wattage bulb. “

**4. Turn Off Lights when not needed.** Consider using motion sensor lighting or timers.

Just as Bob concluded, I remembered Zoe. “Help yourself to come coffee, Bob. I need to take care of something.” I hurried upstairs to finish Zoe's story. She was sound asleep. I turned out the light—every light on the second floor.

Reference: *National Geographic Society; New England Light Pollution Advisory Group (NELPAG)*  
<http://www.cfa.harvard.edu/nelpag/nelpag.html>