

# Dark Skies

through

# Light Pollution Abatement



The Nighttime Sky  
is for us to enjoy!

The Saskatchewan Light Pollution  
Abatement Committee

Our Saskatchewan license  
plates proclaim us to be the  
*Land of Living Skies*



Yet...our night skies are quickly  
disappearing from careless and  
artificial night lighting.

Simply stated, **Light Pollution is light  
that shines where it is not needed or  
wanted.** It also includes lighting that is  
too bright. It is easily recognized as:

- Light that shines off the property where the light fixture is located
- Light that shines onto your property from source not located on your property
- Glaring light from poorly aimed fixtures or from a light that is too bright for its surroundings
- Light that shines up into the sky

**We have no laws that protect our  
"Living Skies". Why not? Call your  
Councillor, MLA or MP and ask them!**

## Responsible Lighting

There are simple solutions to solving lighting problems. The four main considerations for responsible lighting are:

- Control where the light is directed and why it is there at all
- Control the quantity of light emitted
- Control the spectral response of light when necessary to do so
- Control time and duration of lighting

## The benefits of responsible lighting practices are:

- Saving energy through reduction of use
- Minimize light pollution
- Protecting nocturnal wildlife habits and habitat
- Following Kyoto energy policies
- Minimizing dangerous glare & graffiti
- Reducing light trespass & nuisance for adjacent properties
- Providing adequate nighttime safety and security
- Reducing secondary pollution effects such as air and river pollution that are byproducts of current power producing technologies
- Promoting environmental and ecological awareness
- Respecting the 4.3 billion year old natural day/night life cycle
- Preserving the beauty of the night sky for scientific study and personal pleasure

Unlike most ecological problems, light pollution has a solution, Michael Mesure points out: "*At the flick of a switch, this one could disappear.*"

## Ecological Light Pollution

Sharon Guynup from National Geographic writes "*Few studies have been done on the effects of artificial lighting on mammals. All 986 species of bats, most small carnivores and rodents, 20 percent of primates and 80 percent of marsupials are nocturnal.*" Does night lighting affect all these species?

Typical lighting levels between two streetlights are 1 lux. The full moon emits about 0.3 lux. Human beings can navigate in the dark with 0.1 lux. In contrast to this, Squirrel tree frogs can detect lighting levels of 0.0001 lux and tend to become inactive at 0.001 lux. Ben Harder in his article also goes on to state that light domes from large cities can be seen from 200 km to 300 km away and could affect nocturnal species within that radius.



Poorly designed fixtures are often chosen for their daytime decorative look, but at night they pollute the sky and affect wildlife behavior.

## Light pollution reduction always occurs in two stages:

1. Stop the spread by adopting design & management practices that assure responsible lighting now!

## 2. Retrofit existing poor lighting as funding, attrition or renovation allows.

When properly integrated into design, light pollution-friendly lighting enhances the natural beauty and aesthetics of the nighttime environment and preserves natural animal behaviors.

## Stopping the spread of Light Pollution does NOT always mean turning light off!

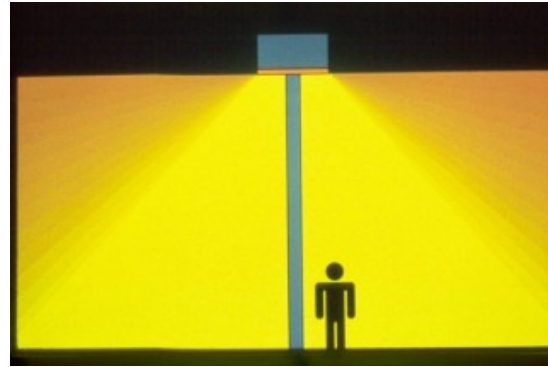
Stopping light pollution means **shielding** lights to point only downward to the ground in proper illumination levels that provide good visibility, safely and security.

Reducing light pollution should also encourage energy saving by using lights and energy more efficiently. Further light pollution reduction methods utilize motion-detecting lighting, and turns lights off when they are not required (after midnight or in seasonal use areas).

Proper illumination means not over-lighting, but uses lower-wattage bulbs that provides good lighting and saves energy. Potting all lighting into **full cut-off** fixtures allow lights to be pointed downward without waste out of the sides or upward into the sky.

## Responsible Lighting

Responsible outdoor lighting that points **downward** to provide **safety and security** does not destroy the nighttime sky. But lighting that point sideways and upward does.



Good lighting shines downward and the sky remains dark.

## Light is everywhere because there are so many *misconceptions*:

**Light at night prevents crime.** No it doesn't! Light by itself only prevents crime if it promotes human activity in the area. When people go home, crime comes out. Shut off lights and **stop** crime! Crooks who need flashlights look awfully suspicious! All-night lighting promotes crime and graffiti because *they* are up, and you are not! 85% of crime occurs during the day anyway, so why do we waste so much power lighting the way for crime at night?

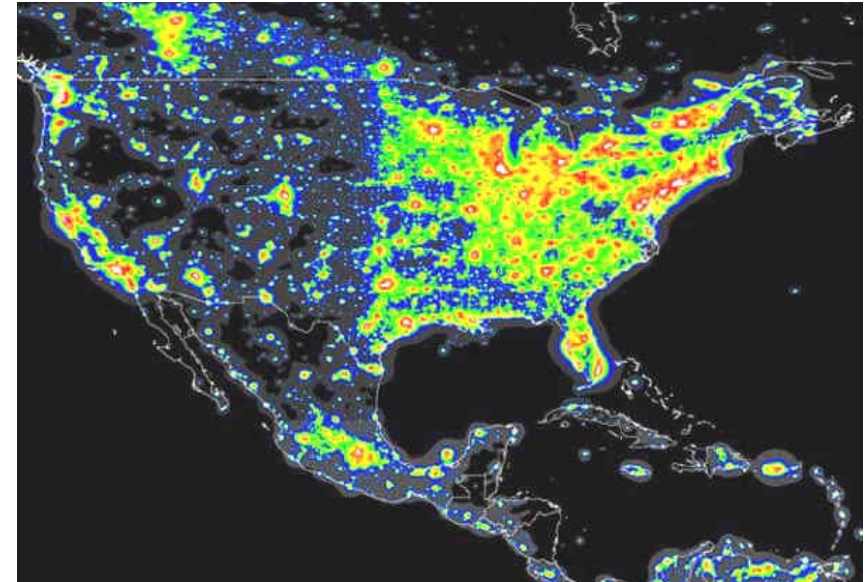
**More light improves visibility.** No it doesn't! At night your eyes switch from using their daytime cones to their low-light-sensitive nighttime rods. So your eyes work better in lower light that is free of glare. More light causes you eyes to try to use daylight cones again, which are not sensitive at night. This produces poor vision, eyestrain and poor contrast. Light should be subdued and *non-glaring*.

**Light pollution is not "real" pollution.** Yes, it is! Light takes away the nighttime sky as smog

takes away healthy air. Energy used to produce wasted light still produces greenhouse gases (GHGs) which creates smog and air pollution. Stop the waste of light and *reduce* air pollution from the burning of natural gas and coal, and altered environments from the damming of more rivers to produce more wasted power.

**Light pollution is only a problem for astronomers.** Those who have moved to the country did not do so to live in a sea of lights! And those who live in the city don't need lights shining in their windows all night long or lighting up the contents of their backyards for everyone to see. Animals and plants have also evolved to have a 24-hour day and night cycle, and even small changes to night lighting affect plant and animal migration, predation, reproduction and survival. 24-hour lighting may also be a factor in the formation of some cancers, according to recent research.

**Our world is full of waste light. It is estimated that North America produces over 10 billion dollars annually of light that is *simply wasted* with fixtures that don't direct light down to the ground. Maps of the earth from space show unshielded bulbs clearly.**



## For More Information, contact:

**Richard Huziak**  
**The Saskatchewan Light Pollution Abatement Committee**

The Royal Astronomical Society of Canada,  
Regina and Saskatoon Centres  
PO Box 317, RPO University  
Saskatoon, SK S7N 4J8  
E-mail: rickhuziak@shaw.ca  
Telephone: (306) 665-3392

**Saskatchewan Light Pollution Website**  
<http://www.ras.sk.ca/lpc/lpc.htm>

## Other information on Light Pollution:

**The International Dark-Sky Association (IDA)**  
<http://www.darksky.org>

**The RASC National Light Pollution Abatement Committee**  
<http://www.rasc.ca/light/>