

Firefly-Friendly Lighting Practices



The Milky Way lights up the night sky over a field of fireflies. Views like this are becoming increasingly rare as artificial light at night diminishes natural darkness, competing with fireflies that use bioluminescence to communicate. However, there are many ways to make your lighting less disruptive to nearby fireflies.



The big dipper firefly (*Photinus pyralis*) is one of our most commonly encountered species.

How Are Lights Harmful to Fireflies?

Artificial light at night, or ALAN for short, may be one of the main drivers of firefly declines. At least 80% of the firefly species found in the United States and Canada communicate with each other using bioluminescent light signals in the form of flashes, flickers, or glows. These species are active at dusk or after dark,

and artificial lights that are on at this time can make it harder for them to see each other. It may also make fireflies more vulnerable to predators that would otherwise be repelled by their light. The resulting decreases in reproduction and survival could have severe consequences for firefly populations.

Where Does ALAN Come From?

ALAN can be caused by street and house lights, vehicle headlights, billboards, and even gas flares from oil fields. It is usually classified into three types, all of which can affect firefly populations:

1. Skyglow: this glowing haze over urban areas makes it hard to see the stars.
2. Light trespass: this occurs when light at ground level spreads beyond its intended or needed area.
3. Glare: this is any light that excessively illuminates areas or objects and can have a blinding effect.

Unfortunately for fireflies (and many other nocturnal and crepuscular animals), the night sky is brightening rapidly all over the world. The United States and Canada have reached the point where only a handful of areas are truly dark at night. In fact, 80% of people in North America can no longer see the Milky Way under even the clearest conditions, because it is obscured by skyglow.

How Can I Make My Lights Firefly Friendly?

There are many ways to make your lighting less disruptive to nearby fireflies.

Best Method

Turn out lights you aren't using! This can be done in many ways:

1. Remove lights that only serve a cosmetic purpose, such as tree lights and facade lighting.
2. Turn off as many other outdoor lights as you can—darkness is best for fireflies.
3. Install motion activators that turn off your lights when no one is around.
4. Install timers that turn off your lights when you are not likely to be around (such as after you normally go to bed) and when fireflies are active, which is dusk through dawn in summer months.

Good Method

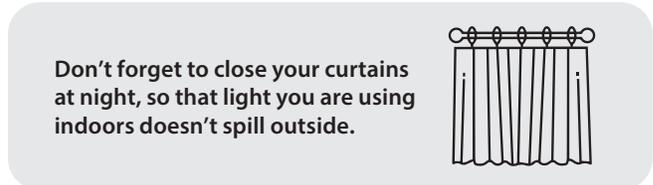
If you need to have lights on, consider these ways of minimizing their impact:

1. Dim your lights to the lowest acceptable intensity with dimmer switches or filters.
2. Filter your lights with red gel filters to minimize their visibility to fireflies and other insects. These filters are often available at major general retailers or specialty lighting or camera stores.
3. Install shielding around your lights to keep light from escaping up into the sky (which worsens light pollution) and direct light away from grass, shrubs, or trees and toward intended areas like walkways.

Learn More

For more recommendations on how to help fireflies, check out our conservation guidelines *Conserving the Jewels of the Night*, available online: <https://xerces.org/publications/guidelines/conserving-jewels-of-night>.

To learn more about artificial light at night, visit the International Dark-Sky Association (IDA) at www.darksky.org.



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