

Blinded by the light

When was the last time you were far enough away from the city to view a dark sky filled with stars? Have you ever wondered why the skies are so much brighter in urban settings and so fewer stars are visible? This month we'll take a look at the scourge of stargazers everywhere—light pollution—and explain how you can get involved in a project that is trying to shed some light on this growing problem.

One of the main sources of light pollution is improperly shielded light fixtures, especially streetlights. If a fixture is not designed to focus the light toward the ground then light can be projected upward. The combined effect of a city full of unshielded lights is brighter evening skies in which only the brightest of stars can be seen. Some cities, such as Tuscon, Arizona, use shielded lighting to cut down on the light pollution that affects their local observatory.

You are probably familiar with other side effects of light pollution such as *urban sky glow*, *light glare*, *light clutter*, and *light trespass*. Urban sky glow is the dome of light that you see on the horizon in the vicinity of a nearby urban area. Light glare and light clutter are light sources that interfere with visibility, such as a misdirected spotlight that temporarily blinds passing motorists. Light trespass is stray light that finds its way into unwanted areas—light streaming in your bedroom window from an outdoor fixture, for example. Each of these types of light pollution can affect our daily lives, but as an astronomer, I am most concerned with the light that interferes with my view of the skies.

It is estimated that on a very dark clear night, away from city lights, a person can see between 1,000 and 2,000 stars. But can you actually see that many, especially living where you do? If you went out to count the stars visible from your neighborhood tonight, or on the next clear night,

how many would you actually see? And how would this number compare with a star count taken at a different location? You may be surprised at how many stars in your skies are rendered invisible by local light pollution. Unfortunately, many of us must travel quite some distance to avoid the light pollution of cities, and enjoy a clear view of the stars.



NASA

As the Sun sets, the lights of Europe come alive.

How dark are your skies?

Aunt Nan cannot see her favorite star any more because the city lights from nearby Oakdale have caused the sky to brighten. This prompted her niece, Becky, a member of the local girl scouts, to take a closer look at light pollution and how it was affecting her family. Her work and that of other concerned scouts can be found at *Plugged-In*, a website developed by Girl Scouts of Mid-Century Council in Kansas City, Missouri, with the help of a grant from the National Science Foundation. At this site you will find useful

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information on light pollution and light fixture design, as well as activities and an interactive map illustrating the extent of light pollution across the United States.

The website also invites you to take part in a nationwide survey on light pollution. You can use an online form to submit data on the number of stars visible in your evening skies. This data is then used to update the interactive light pollution map.

I hope you'll take the time to encourage your students to submit local data to this survey. Unless we raise awareness of this growing problem and start taking action to reduce light pollution, we'll have nothing but bright skies in our future, which would be a real shame for astronomers and stargazers everywhere.

Internet resources

The International Dark Sky Association:
www.darksky.org.
 Plugged-In Project: www.plugged-in.org.

Visible planets

- Mercury is visible over the western horizon after sunset during the first half of the month.
- Venus is visible after sunset, but this month it is low over the southwestern horizon and somewhat difficult to observe.
- Jupiter rises over the eastern horizon about two hours after sunset and is visible the rest of the night.
- Saturn rises over the eastern horizon at about sunset and is visible all night.



Moon phases	October	November
First Quarter	10/05	11/04
Full Moon	10/13	11/11
Third Quarter	10/20	11/18
New Moon	10/27	11/25

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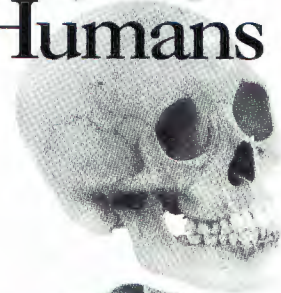
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