



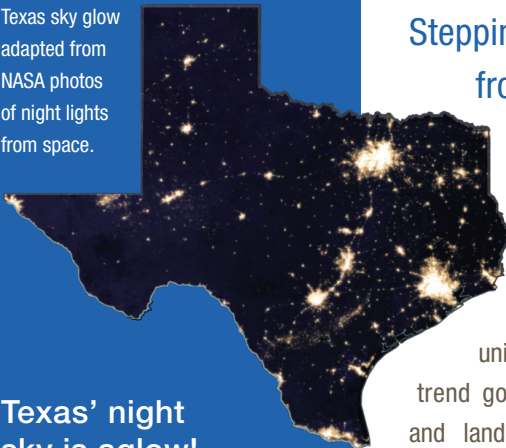
Issue: Preserving the Night Skies



HCA is a passionate community caring for the unique features, spring-fed streams, heritage ranchlands, spectacular beauty, and culture of the Texas Hill Country for the benefit of future generations.

There is something magical about the starry night sky in the Hill Country. Stepping outside on a crisp, clear night to gaze at the stars helps us escape from the fast pace of our daily lives and connect with the natural world around us. It is essential to ensure that we do not lose our lovely night sky to ever-increasing light pollution.

Texas sky glow adapted from NASA photos of night lights from space.



Texas' night sky is aglow!

Population growth in Texas cities, towns, and transportation corridors has significantly increased light pollution to the extent that most Texans can no longer see the Milky Way at night.

You can find the darkest skies in North America above the McDonald Observatory, located in the Davis Mountains of West Texas. As responsible neighbors, the Hill Country is obliged to help protect this unique scientific and cultural resource.

Outdoor lighting has carelessly, and often unintentionally, increased light pollution. The trend goes hand in hand with population growth and land fragmentation. The undesirable effects of light pollution – glare, light trespass, light clutter, and sky glow – make our region less attractive to visitors who play vital roles in many local economies.

There is good news: Light pollution is relatively easy to control and simple to “fix.” Unlike other forms of pollution that seem impossible to cure, once we learn to use proper lighting, we can quickly restore our starry night sky.

Modern and appropriately directed fixtures can keep light on the property and eliminate energy waste.

“The stars are the jewels of the night, and perchance surpass anything which day has to show.”

– Henry David Thoreau

This simple approach exemplifies energy conservation, respect for private property rights, and makes for good business and good neighbors.

The HCA Night Sky Team has worked with communities, businesses, State Parks, electricity providers, and individual landowners to address light pollution. Many Hill Country cities have already passed lighting ordinances advancing the momentum to protect our starry nights. Our Hill Country region is on its way to being known as a place where the “stars at night shine big and bright” eternally. The benefits go far beyond beauty, health, and tourism appeal – reducing light pollution reduces electric bills and saves money!



hill country alliance



Hill Country Night Sky Month is an opportunity to elevate the regional effort to ensure star-filled skies for future generations across the Hill Country.

We encourage counties, cities, school districts, and others to recognize Night Sky Month through proclamations officially, but the best part is all the many ways communities come together to celebrate.

Partners throughout the region host events like virtual star parties and night hikes, night-sky-themed poetry and art contests, radio shows and celestial scavenger hunts, awards for the most creative light shields, and much more.

Night Sky Month is also an excellent time for communities to update local ordinances, utilities to revise street lighting policies, and the public to rally around lighting improvements in town – whether along Main Street or out on the high school football field.

The inaugural event began in October 2020 and will continue to help spread night sky awareness for years to come.

Visit the event webpage for more information:
www.hillcountryalliance.org/nightskymonth

Communities Working to Preserve Night Skies

Friends of the Night Sky

Hill Country Friends of the Night Sky groups are our region's local voices for night sky preservation. They are the educators, advocates, and conveners who work with schools, chambers of commerce, local governments, and other community partners to advance night sky preservation at the local level and help establish local ordinances, resolutions, and dark sky designations. The Hill Country Alliance supports all Friends of the Night Sky groups and is working to develop new groups. Visit the Get Involved section of our website to join your local group or to learn how to form a group in your community: www.hillcountryalliance.org/getinvolved

State Parks Leading the Way

Texas State Parks are leading the country in their efforts to preserve the night skies in and around the parks. In recent years, Enchanted Rock State Natural Area and South Llano River State Park earned designations from the International Dark-Sky Association (IDA) as Dark Sky Parks. Earning the designation requires parks to provide night-sky-related educational programming and events, regularly measure the quality of the night sky at the parks and improve park lighting. Increasingly, the Texas State Parks in the Hill Country are becoming treasured destinations for stargazing. Protecting them and their surrounding areas is more important than ever.

International Dark-Sky Designated Places in the Hill Country

The Texas Hill Country is one of the most recognized regions in the world for dark skies. The multitude of areas participating in the International Dark-Sky Places program shows us how special the night skies are to our region.

- Four International Dark-Sky Communities
- Three International Dark-Sky Dark Sky Parks
- Two International Dark-Sky Developments of Distinction

Many more Texas Hill Country places are in the process of applying for their IDA designation. Visit the Texas Chapter of the International Dark-Sky Association for more information about designated Dark Sky Places in our area: www.txnsf.org. Visit the International Dark-Sky Association to learn more about the different types of designations: www.darksky.org

Hill Country Alliance Recognition Programs

Join the ever-expanding group of landowners, businesses, and communities that have pledged to preserve the



Hill Country night sky. Our Night Sky Friendly Neighborhood program recognizes subdivisions and neighborhoods that adopt the County

Subdivision and Night Sky Friendly Neighborhood outdoor lighting policy into their homeowners' agreements or deed restrictions. The Night Sky Friendly Business Recognition Program is a cooperative program between our Friends of the Night Sky groups, some Hill Country Chambers of Commerce, and the Hill Country Alliance. The program recognizes businesses and organizations that have adopted night sky-friendly outdoor lighting and encourages others to follow suit. Visit the Get Involved section of our website to learn more. www.hillcountryalliance.org/getinvolved



Ordinances and Resolutions Affirm Commitments to Night Skies

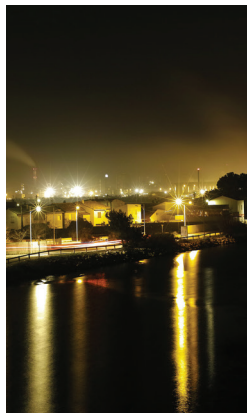
Hill Country towns including Bandera, Blanco, Boerne, Bulverde, Dripping Springs, Fredericksburg, Horseshoe Bay, Johnson City, Llano, Mason, Wimberley, and many more have adopted night-sky-friendly lighting ordinances for all new construction. Counties do not have the authority to adopt these standards. Still, several, including Bandera, Blanco, Burnet, Comal, Edwards, Gillespie, Kendall, Kerr, Kimble, Mason, Real, and Uvalde, have resolutions affirming their support and committing to “using efficient, cost-effective, non-intrusive lighting” and to “educating and encouraging landowners, businesses, residential communities and public entities to join this commitment.” Chambers of Commerce, businesses, parks, and not-for-profits have similarly dedicated to keeping skies starry. Sample ordinances and resolutions are available on our website: www.hillcountryalliance.org/nightskyplanning

Friendly Outdoor Lighting Saves Money

FACT: Approximately 30% of the energy cost powering unshielded bulbs is uselessly illuminating the night sky. This wasted energy costs \$2.2 billion annually in the United States alone. Locally, the immense volume of misdirected light contributes to light pollution and the steady loss of a precious Hill Country resource, our brilliant starry skies.



PROBLEM: Consider the popular outdoor halogen floodlight. We commonly see these everywhere, aimed willy-nilly, often illuminating areas that neither need nor want the light such as a neighbor's bedroom window or the night sky.



Floodlights can be a big problem, even if you live out in the country. Be considerate to your neighbors – turn off or shield your lights. It's easy!



SOLUTION: By taking a couple of simple steps, this homeowner could do their neighbors and the night sky a big favor...and save money in the process! The homeowner could shield the light, redirect it to shine downward inside their own yard, reduce the wattage of the light bulbs and still have the same amount of usable light within the desired area.

In this example, the homeowner could replace the two 90-watt halogen floodlights with two 50-watt halogen bulbs, put on a couple of Parshield Glare Visors and aim fixtures downward. These simple steps would concentrate light where it is needed and save energy.

Learn how to make your outdoor lighting night sky-friendly while saving yourself money. Visit: www.hillcountrynightskies.com

Dollars and Sense

If the homeowner in our example is a customer of the Pedernales Electric Co-operative (PEC), they pay 7 cents per kilowatt-hour for their electricity. Every hour the two 90-watt lights are on costs them 1.3 cents (180 watts/1000 watts times 7 cents). Assuming the light is on dusk-to-dawn all year, it would be on some 4100 hours, and they would pay PEC almost \$52 a year to run it. Wow! Those cents add up quickly. Now, how many of these lights do they have around their house? You do the math for multiple lights.

But this homeowner is savvy. They shielded and redirected the light and replaced the two 90-watt halogen bulbs with two 50-watt bulbs. Now every hour it shines only costs them 7/10th of a cent. Big difference. If they still run it all night all year, their electric bill will be \$28.70, almost half of what they were paying before, just by having the proper sized light, aimed, and shielded. They stopped wasting energy by not shining it into the sky or onto their neighbor's property. If they used 15-watt LED bulbs instead of the halogens, their annual cost would tumble to just \$8.61.

The homeowner saves even more energy and money if they put the light on a timer or, better yet, a motion detector. Shining a light all night might make you feel safer, but studies show that it does not stop crime. Studies also show that artificial nightlights prevent almost all living creatures, including humans, from producing melatonin needed for health. Why light all night when it's so easy to save money, make better neighbors, protect wildlife, and preserve the night sky? Any way you cut it, it's a "win-win" situation.

Save Energy, Save Money, Save Water

Homeowners might also be happy to learn that proper outdoor lighting saves water in the big scheme of things. Forty percent of all surface water in Texas, at some point along the way, is used for cooling or for generating steam for electricity provided on the state's grid. Every watt saved translates to water conservation. So, by curbing light pollution, we're also helping preserve another precious Hill Country resource, our water.

Are LEDs good for Night Sky Preservation?

Many LEDs on the market are labeled "Dark Sky Compliant." Unfortunately, that label is applied far too broadly and often neglects a fundamental characteristic of the light: the correlated color temperature (CCT), or more simply, the light's color.

CCT is a measure of how amber or blue the light appears. A more amber (warmer light is significantly better than light that is bluer (cooler). Although it seems brighter, bluer light decreases visibility because it produces more glare. It is more disruptive of starry nights, melatonin production in humans and wildlife, and a relaxed night time streetscape.

CCT is measured in degrees kelvin (K). Lower numbers correspond to warmer – that is, less intrusive – light. LEDs that emit light at or below 3200K are significantly better than those above 3200K. Avoid LEDs that emit light at 4000K or higher.

The good news is that amber LEDs are on the market and are just as efficient as the bluer LEDs. The Hill Country Alliance is here to work with electric utility providers to ensure that all installed LEDs are Night-Sky-friendly LEDs.

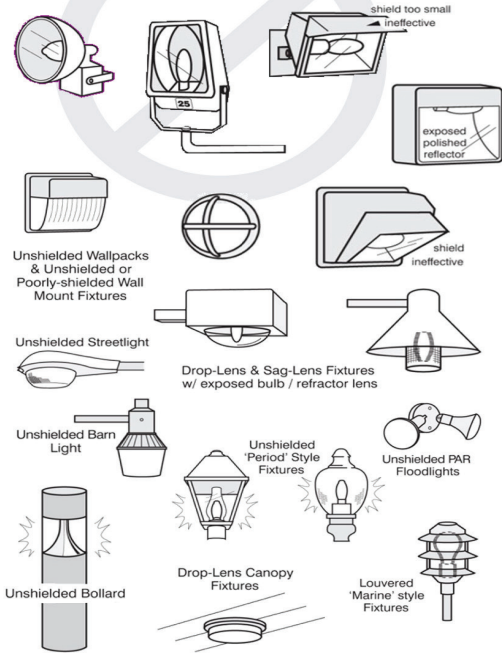
Better Lights for Better Nights

Help eliminate light pollution. Select the best fixture for your application using this guide. Use the lowest wattage bulb appropriate for the task and turn off the light when not in use. If you are considering LEDs, select one that emits light with a color temperature at or below 3200K.

Examples of Acceptable / Unacceptable Lighting Fixtures

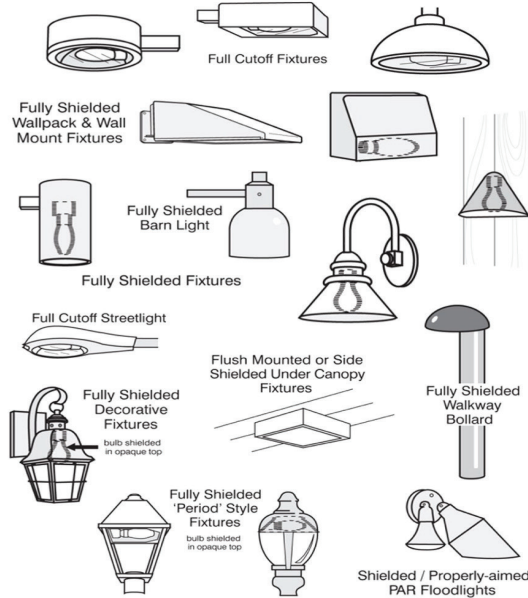
Unacceptable / Discouraged

Fixtures that produce glare and light trespass



Acceptable

Fixtures that shield the light source to minimize glare and light trespass and to facilitate better vision at night



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How to Preserve Night Skies

Aim lights down – light should project below and out to the fixture sides, not letting any light escape above the horizon. Install light fixtures above the area needing illuminating. Block light from shining above the horizontal plane, only lighting the area below.

Shield every light – install and shield all lights to hide the light source from any usual viewing point and neighboring properties. Eliminate glare and protect eyes from directly viewing the light source. Shielded and concentrated light requires less wattage than unshielded fixtures to achieve the same illumination. Thus, it saves money.

Reduce the amount of light – select the light's wattage, or more accurately, the number of lumens for the desired use. Consider that very bright light can make nearby areas dangerously dark, degrading security.

Use lighting only when needed – use a switch, timer, or motion detector to conserve valuable resources. Lighting unoccupied areas has not been shown to keep criminals away and may even attract them. But all lights, even those on timers or switches, still need to be shielded.

Work with electric power suppliers and local governments – encourage utilities and local governments to take steps now to reduce light pollution and implement a more innovative night lighting policy. Help educate citizens, consumers, elected officials, institutions, and businesses on the importance of preserving the quality of the Hill Country's night sky.

Who is HCA?

The Hill Country Alliance's primary activity is to inform citizens about current issues relating to growth and development in the Texas Hill Country. Our program areas – Night Skies and three others described below – maintain our strategic focus and align our work within the region.

Water

Promoting land and water conservation and water infrastructure alternatives like rainwater harvesting and net-zero water development, HCA advances sound science in groundwater decision-making and planning.

Land

Addressing the threat of invasive vegetation, promoting restorative agriculture and ranching, and facilitating large-scale landscape conservation by creating resources and forums for landowners, neighbors, elected officials, and all concerned citizens.

Community

Encouraging new and better ways to grow healthy, vibrant communities in the urban corridor and in rural areas throughout the region, we work to bring communities together around shared values.

HCA's Night Sky Team and Friends of the Night Sky groups are full of knowledgeable volunteer leaders ready to help you do your part at home, on your land, at your business, and in your community.

For assistance, contact info@hillcountryalliance.org or P.O. Box 151675, Austin, Texas 78715.



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