



A Dark Skies Park



Figure 1. As the sky darkens on a summer night in Joshua Tree National Park, the Milky Way emerges, offering visitors a view across the spiral galaxy in which our own solar system resides. (NPS / Stacy Manson)

An International Dark Sky Park

Go outside at night in Joshua Tree National Park (JTNP) and look up. On most nights, you'll see stars—lots of stars. You may also see comets, meteors, planets, or other dazzling features of the truly dark night sky. Many people have their first breathtaking view of the Milky Way on a summer visit to the park.

The naturally dark night sky is a natural resource, just like the park's population of desert tortoises or swaths of spring wildflowers. And national parks are charged with protecting resources for the education and enjoyment of future generations. So JTNP has worked toward, and in 2017 received, official certification as an International Dark Sky Park.

This designation is awarded by the International Dark-Sky Association (IDA), a nonprofit that, since 1988, has worked to protect night skies from light pollu-

tion. JTNP is one of 14 national parks with "Dark Sky" status and one of 120 Dark Sky sites in the United States.

Today, Dark Skies Are Rare

For millennia, all humans lived under starry skies. But today, most people rarely, if ever, see a truly dark sky. In the past century the world's population has grown exponentially, from two billion to nearly eight billion. Cities have grown along with population, and modernization has brought a dramatic increase in outdoor lighting—mostly in the form of streetlights and other "security" lights.

Traditionally the design of these fixtures has allowed light to spill upwards, where it scatters through the atmosphere, hiding the light from the stars, much the way light from the sun obscures them by day. More than 80 percent of the world's population can no longer see most night stars.

Light Pollution is a Problem

For humans, the loss of truly dark nights has both cultural and physical impacts. In the past, people in many cultures navigated by the stars. They used the predictable movements of constellations like a calendar, to track the seasons. Night skies have inspired religion, literature, art, and philosophy. Few people today experience the awe a night sky can inspire.

Meanwhile, studies show exposure to artificial light at night can disrupt circadian rhythms—natural biological clocks. Night lighting suppresses production of the hormone melatonin, which regulates the sleep-wake cycle and influences metabolism and immune response. This means exposure to light at night may increase the risk of a variety of health problems.

Night skies also have unexpected negative impacts on wildlife. Animals that

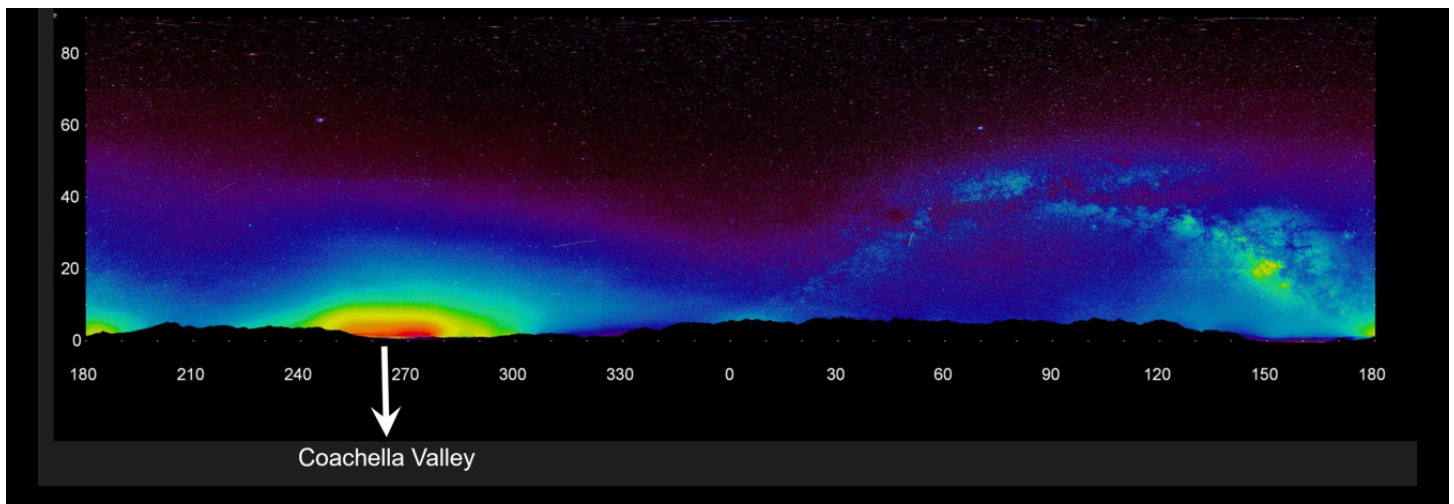


Figure 2. A photomosaic of the night sky, stitched together from images taken with a robotically controlled camera, offers a 360 degree panorama from Pinto Wells inside the park. Some light pollution is shown on the horizon from the direction of the Coachella Valley and the Los Angeles metropolitan region. (NPS / Stacy Manson)

forage under cover of darkness to avoid predators are no longer hidden. Bird and insect species that navigate by the stars on seasonal migrations lose their celestial signposts. In the Mojave Desert, the night-flying moths that pollinate yucca plants can be drawn to and disoriented by nighttime lighting. That makes it harder for them to find plants and mates and avoid predators.

Keeping Park Skies Dark

As part of the certification process to become a Dark Sky Park, JTNP developed an outdoor lighting management plan. Staff started by making an inventory of all outdoor lights; today, 99 percent of those lights have been converted to IDA-approved fixtures that are fully shielded, meaning they aim light downwards, not into the sky. By 2027, all lights in the park will be fully shielded.

To maintain dark-sky status, park staff also monitor "zenith night sky brightness" (a standardized measure of light in the night sky), using a device called a Sky Quality Meter (SQM). It combines a camera, a robotic mount, and a laptop computer equipped with specialized software. The computer points the camera to pre-determined areas of the sky, capturing a series of short exposures to measure brightness and calculate how measurements deviate from naturally dark conditions. Monitoring takes place in Black Rock Canyon Campground, the Key's View lookout,

Hexahedron Mine, Cottonwood Springs, and Pinto Wells.

Although the park controls outdoor lighting inside its boundaries, lighting in neighboring communities can impact sky views in the park. So JTNP staff also conduct outreach to local municipalities and businesses, sharing information on dark-sky-friendly lighting. Notably, they collaborated with the San Bernardino County board of supervisors to develop an outdoor lighting ordinance to protect dark skies that went into effect in 2023.

Learning About the Stars

Today some people come to JTNP not for the famous spiky trees or the chance to see a bighorn sheep, but specifically to engage in "astrotourism." The park's interpretive rangers have developed a variety of ways to share information about the night sky with visitors, including regularly offered fireside astronomy talks and the annual Joshua Tree Night Sky Festival.

Special campgrounds, trailheads and trails have also been designated as all-night stargazing sites. The park website includes information for stargazers, as do the park's social media feeds and new roadside exhibits. And a partnership with Sky's the Limit, a nonprofit nature center and observatory in Twentynine Palms, has yielded innovative programs like live viewing sessions with the observatory's 14-Schmidt-Cassegrain telescope.

Tips for Stargazing at JTNP

Use Red Lights Only

White light affects your night vision. You can make a red light by simply covering a regular flashlight lens with red cellophane, tape, or paper.

Bring Food and Water

There is no running water in most areas of the park.

Layer Up

Temperatures drop quickly at night in the desert.

Bring a Chair

A lightweight folding chair keeps you comfortable while looking up. Please don't trample vegetation, and watch out for cacti!

Check the Phase of the Moon

You won't see as many stars in bright moonlight.

For more information on stargazing in and near the park: <https://www.nps.gov/jotr/planyourvisit/stargazing.htm> and our partner, [Sky's the Limit Nature Center and Observatory](#)