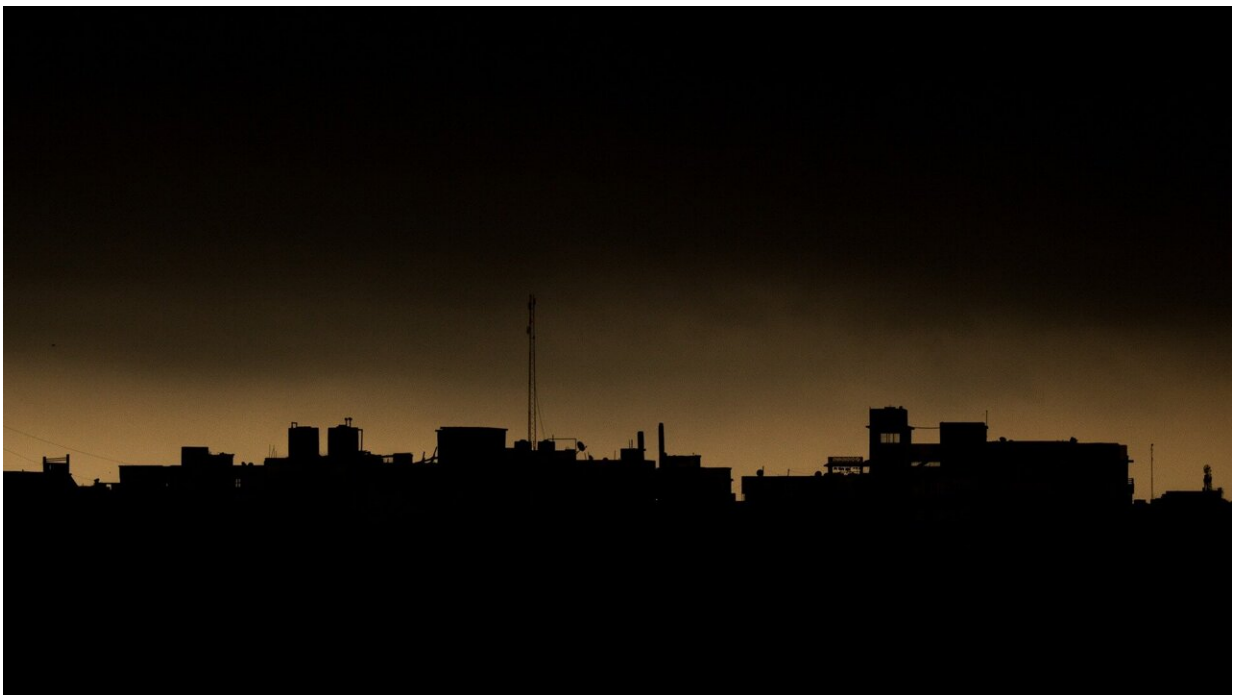


Fighting light pollution: The West Texas effort preserves one of the largest dark sky reserves

April 21 2023, by Alfredo Corchado



Credit: Pixabay/CC0 Public Domain

To sit under the vast expanse of stars is to imagine swimming across shining, stellar rivers, creeks and tributaries. But to sit here also is to feel that lump in your throat and skip in your heart, realizing everything you know is far smaller than the majesty of the universe.

You could sense all of that during a recent stargazing party at the University of Texas at Austin's McDonald Observatory, nestled high in the Davis Mountains. On a cool spring evening, dozens gathered at the edge of dusk, some walking with the help of a cane, others holding hands.

Comforted by the celestial canopy, a young couple embraced and kissed. Near them, a father and his young daughter waited to peer through a [giant telescope](#) that stood tall and fierce like a rocket ready for liftoff. The father pointed to what he thought might be the Pleiades star cluster—or maybe some other planet in the Milky Way.

The visitors came to this vantage point, about 6,800 feet above sea level—some from as far away as Norway, India and Chihuahua, Mexico. In hushed, reverent tones, they spoke in their native languages as they wandered around several telescopes.

All gaped in wonder as the mountain air turned chilly and the colors above faded from bright orange to pale pink. All waited in keen anticipation for any hint of what they might find beyond the known universe.

Here, astronomers and conservationists are fighting against the encroaching light of towns and industries, the kind of thing that humankind and progress bring. It's a campaign to maintain one of the world's largest dark sky reserves, which happens to grace the state of Texas.

"The Greater Big Bend region of Texas and Mexico is fortunate to be one of the darkest remaining areas in North America," said Stephen C. Hummel, chairman of the reserve and Dark Skies Initiative coordinator at McDonald Observatory.

"An uninterrupted view of the Milky Way," he said, "is as integrally tied to the identity of the region as the mountains, flora and fauna."

'Matt Damon is not up there'

At the stargazing party, Tommy Lepori, long hair spilling down to his waist, adjusted his safari hat and smiled at all the, well, starstruck visitors.

He informed everyone they had not identified the Pleiades, but instead located Mars.

"It's not a red planet; it's a rust planet... due to the oxidization of the iron content on the surface there," said Lepori, 28, a telescope operator at the party. "And, no, Matt Damon is not up there," he said, referring to the Hollywood actor's role in "The Martian."

Laughter erupted.

Far West Texas is the heart of the Greater Big Bend International Dark Sky Reserve, an ambitious initiative to create one of the world's largest sky reserves free of [light pollution](#).

The initiative seeks to educate governments, businesses and residents about the importance of reducing light pollution and nurturing darker skies, which can help generate tourism.

The initiative, approved in 2022, spans this binational region, including the northern Mexican states of Chihuahua and Coahuila encircled by stunning desert beauty. The area spans the magnificent Rio Grande, which, along with the blanket of stars, ignores the border between countries.

The effort, spearheaded by the McDonald Observatory, involves four counties in Texas plus a protected area in Northern México, to create more than 15,000 square miles in parts of western Texas and northern Mexico, much of it desert and rugged terrain.

Funding comes from the McDonald Observatory, which is supported by multiple private, state, federal and educational sources.

It is the only such reserve to straddle an international border, and serves as a magnet for astronomers, conservationists and lovers of nature's cosmic mysteries.

Pollution-free skies

The Texas Chapter of International Dark-Sky Association, a volunteer educational group, recently rebranded itself as DarkSky Texas to coincide with the annual International Dark Sky Week, April 15-22, to generate awareness of the importance of promoting "pollution-free skies," said Soll Sussman, board member of the DarkSky Texas.

Sussman said meetings are held the first Wednesday of every month with Texas communities to promote awareness. A DarkSky Texas delegation will be in Dallas during EarthX's Earth Day Expo 2023, April 21-23.

The McDonald Observatory, DarkSky Texas and other entities have long pushed for the creation of the reserve, arguing that the designation would protect astronomers' research while also supporting unspoiled refuge for outdoor tourism, the economic lifeline of these sparsely populated counties.

The West Texas region, from the Midland-Odessa area to Sierra Blanca and El Paso, is threatened by light pollution, which is defined by experts

like Hummel as unwanted, artificial lighting.

The sources of the light include the oil and gas industry in the Permian Basin and an immigration detention center in Sierra Blanca.

"Too many people associate security with light, and that's not what we need," Sussman said.

Educating communities

Shelley Bernstein is executive director of the Big Bend Conservation Alliance, a nonprofit that promotes the conservation of water, dark skies and cultural heritage.

One of her passions is promoting the importance of dark skies to surrounding communities in the counties of Jeff Davis, Presidio and Alpine.

She visits city council meetings, businesses and neighbors and explains the importance of swapping "mercury vapor light" for "LEDs under 2500 Kelvin," she said.

"McDonald Observatory is the leader," she said. "They know all the science. What we know is the community. So what we did is [we] mapped a very specific kind of light that creates some of the worst kind of light pollution. You see the difference at night when these skies turn dark and beautiful. And it's economical, too."

A study by the International Dark-Sky Association, founded in 1988 to increase awareness about light pollution, estimates light pollution costs Americans an estimated \$2.2 billion a year nationwide, because it wastes energy.

The reserve designation guidelines called for local governments across the Big Bend region to adopt stricter outdoor lighting rules. That's not as easy as it sounds, conservationists like Bernstein and Sussman say.

The designation itself is largely symbolic as groups overseeing the reserves have no regulatory power. Still, the benefits have far-reaching ramifications for the population in the region and beyond.

Light pollution prevents nearly 80% of North Americans from seeing the Milky Way in the night sky, according to a research study published in the journal *Science Advances*.

Moreover, Hummel said, "light pollution grew at an average rate of 10% per year in the past decade in North America, far faster than the rate of population growth."

Since the reserve's designation, the night sky became 3% darker, a sign that light pollution is reversible with simple changes, Hummel said.

Paradise

Up the road, some 30 miles from Marfa, lies Fort Davis.

There, inside a small one-story house lives Peter Armstrong, an avid photographer of the skies. Armstrong believes he's found the closest thing to paradise, right in his backyard facing north toward the McDonald Observatory.

The observatory is where he volunteered one summer and "hung out right where Carl Sagan and Albert Einstein stood," he said.

Armstrong, 78, who is legally blind, is retired and a self-described "gadget guy." He uses a telescope to see the images on a giant computer

screen.

A veteran software expert, he fixes computers on the side, though most of his time is taken up by his fascination with what's beyond the earth's atmosphere.

"Most people... only have to take one good look at Saturn through a decent telescope and they'll be hooked," he said. "Saturn is such a beautiful planet if you [have] good seeing conditions and have a decent telescope."

A few miles away, after a steep climb up the Davis Mountains, stargazers flocked in awe of giant telescopes pointing toward space. They gathered at the McDonald Observatory, waiting.

Dusk faded, moving from shades of pink and blue to a deep cobalt.

Lepori, the telescope operator, stood a few feet away from the crowd and loved what he saw.

"It's going to be a great night," he said. He can't wait for summer to come, when the crowds will grow larger—and the skies darker.

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