

# GUEST SPOTLIGHT



## MEASURING & TREASURING OUR NIGHT SKIES

NPS NATURAL SOUNDS AND NIGHT SKIES DIVISION

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The Natural Sounds and Night Skies Division (NSNSD) is located within the Natural Resources Stewardship and Science Directorate of the United States National Park Service. The NPS Organic Act, Management Policies and Director's Orders provide NSNSD with a mandate to protect the sensory resources of natural sounds and night skies. NSNSD measures and assesses the acoustic and nocturnal environments with new and innovative techniques that are based on peer reviewed scientific research and provides highly specialized technical assistance and guidance to 421 park units within the national park system. The Division also assists partners in their efforts to keep the soundscape and night sky undisturbed by human noise and artificial light.

Protecting the night sky resource is an important part of the NPS mission to "preserve unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations." The National Park Service has been collecting and analyzing data used to understand night sky quality for 20 years. Data is collected with a state-of-the-art, charge-coupled device (CCD) camera which provides a snapshot of the entire sky aiding in the measurement of artificial light that degrades the night sky. Capturing the essence of a lightscape with numerical data is complex, but advances in science and technology have made it possible to efficiently and accurately measure light pollution.

When analyzing the hundreds of images collected at NPS units, one thing NSNSD expected to find was a greater amount of light pollution coming from outside park boundaries. A surprising finding was that many parks had lighting that was not night sky friendly and was in fact a significant contributor to park light pollution.

In an effort to improve lighting and educate park staff, the NPS came out with *Best Practices - Night Skies*. To assure that night sky friendly lighting was used in NPS units, NSNSD needed to know where the "bad" lighting lived. To better understand lighting in NPS units, parks began performing lighting inventories. A lighting inventory is a way to collect lighting information such as function, shielding, color temperature, and other relevant attributes to quickly determine if that light needs to remain, be removed or replaced.

Through the lighting inventory process parks can ensure that they are using best management practices by only using lighting when and where it is appropriate, and by replacing lighting that disrupts the nocturnal environment for visitors and wildlife. The NPS in coordination with many partners has developed a tool using the ArcGIS suite of products to organize lighting information.

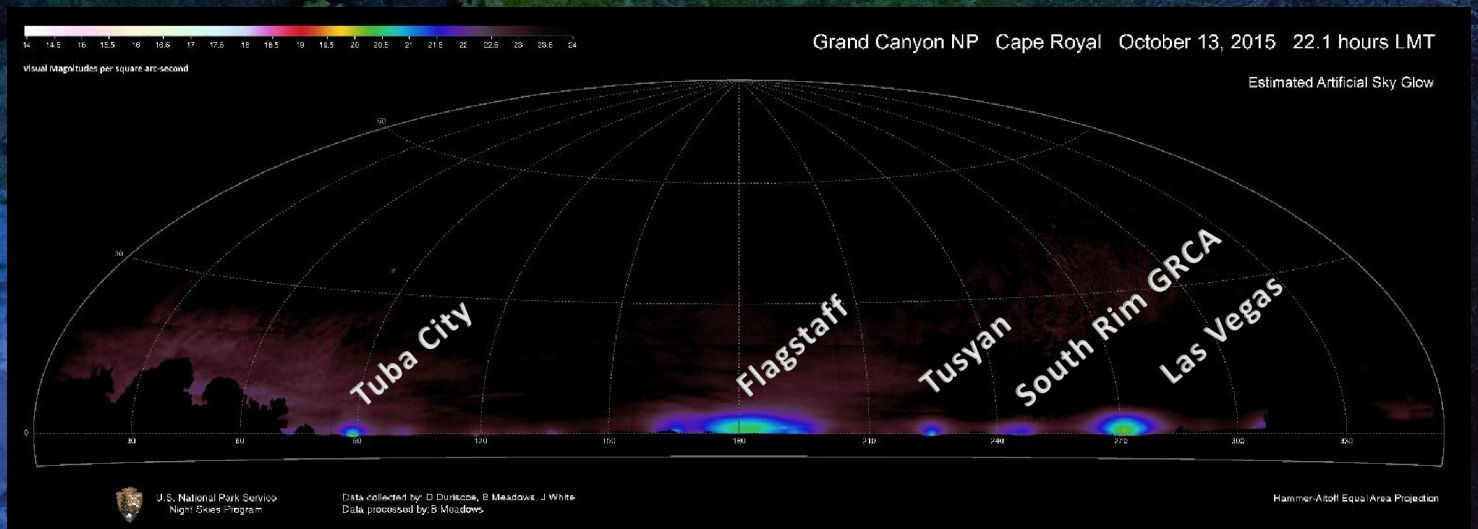
LIGHTING INVENTORY PROCESS



Completing a lighting inventory is also a mandatory step for certification as an International Dark Sky Park. Currently there are 36 NPS units certified by the International Dark Sky Association (IDA). This certification gives parks that work to interpret, protect, and share their night sky the recognition they deserve! All IDA certified park applications can be found on the NSNSD website including information about sky quality and night sky friendly lighting. A lighting inventory webinar, discussing the NPS methodology for lighting inventories, can be found at <https://youtu.be/dGB4GN7Iiqc>

Parks and park partners are encouraged to reach out to the Colorado Plateau Dark Sky Cooperative or the NPS Natural Sounds and Night Skies Division to develop a timeline to acquire the tools and personnel needed to complete a lighting inventory and subsequent lighting management plans.

Since 2001 the NPS has collected data in over 100 national parks (for more information on these data collection methods check out: [NPS Methods - Night Skies](#)). Many of the methods and resources used by NSNSD are available to the public via NSNSD websites, publications and by contacting the Division directly. You can learn more about the NPS night skies work by visiting [nps.gov/subjects/night skies](https://nps.gov/subjects/night skies) and visiting: [The Night Skies of the U.S. National Park Service Story Map](#). We are all under one big night sky and are happy to collaborate to protect our shared night!



*Light domes along the horizon at Cape Royal on the North Rim of the Grand Canyon. While much of the light pollution comes from cities, as distant even as Las Vegas, the Grand Canyon Village located on the South Rim can still be seen. In 2016, the Grand Canyon was certified as an International Dark Sky Park and worked to retrofit lights that were not night sky friendly.*