

Preserving darkness in the city

Dark sky preservation raises awareness of city lighting concept as a whole. Avoiding over lighting reveals darkness as a part of the natural environment.

Where is the dark sky?

Brightness is often related to positive feelings. Light represents the modern age and economic prosperity. With a rapid industrial development, the amount of light in the cities has increased tremendously. A large amount of both direct and reflected artificial light gets diffused through airborne particles in an urban environment. As a result, the “light-domes” above our cities have grown more than 5% each year. And today, we can no longer see the stars of the night sky.¹

The stars or the Milky Way are not visible at night due to the light-domes. City children can no longer experience the virtue of history and culture of seeing stars at night. Scientists have to relocate their observatories to remote suburban areas, outside the city environment. And with the diminishing number of available observatory spaces, the field of astronomic research is getting limited.



Photo: Shutterstock

Ways to protect dark sky in an urban environment

- ▶ Integrate the field of astronomy to education curriculum in public schools.
- ▶ Raise awareness for problems associated with the use of artificial lights through public workshops and discussion forums. For instance, organise city-wide “dark walks” for the general public.
- ▶ Protect darkness for areas around the observatories through policy regulations to allow for sensual experiences.
- ▶ Develop and adopt a lighting masterplan that incorporates sustainable design and environmentally friendly technology to a city-wide lighting regulation.



Photo: Topi Haapponen

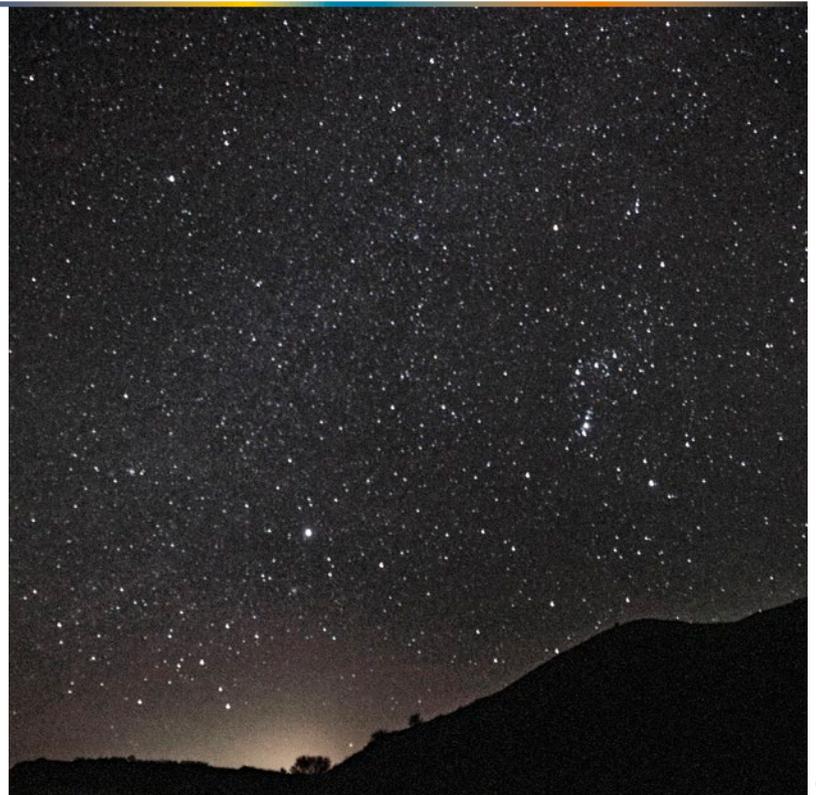
Example of maintaining the dark sky. Porvoo, Finland.

Identifying dark zones can bring back the tradition of sensual experiences related to seeing stars at night. Taking actions to preserve “dark sky” in an urban environment can lead to overall increase in energy efficiency and sustainability for the city. The identification of dark zones in the city does not compromise security and the feeling of safety for the public.

See next page for more information ▶

Reducing light pollution^{2,3,4}

- Reduce the overall light output in the city.
- Use luminaires with direct light distribution (full cut off lighting).
- Choose warm white light colour for the public lighting.
- Provide regulations for the maximum luminance level, size, and placement for advertising panels.
- Restrict (or limit to minimum periods) sky beamer light shows.
- Create dark areas with a comfortable and welcoming atmosphere, to invite citizens to adjust to darkness and observe stars at night.
- Use light control systems to lower the illumination level during times of low traffic.
- Implement an environmentally friendly lighting design.



Kragemosen is one of several areas where there is close to zero light pollution on the Danish island of Samsø.

© Photo: Finn Leeth, Samsø

Precedents for “dark sky parks” and “dark sky communities” in cities

There are several areas in Europe that are officially designated as “dark sky parks” or “dark sky reserves”. A dark sky park aims to provide darkness by lowering the usage of artificial light, to protect natural habitats and the view of the night sky. This provides important cultural, educational, and scenic values for the citizens. A dark sky reserve offers additional features for science and discoveries. In these parks, one can see the moon, bright stars, sometimes the brightest planets or even the Milky Way with the naked eye.

Additionally, “dark sky communities” use high quality luminaires to foster public engagement. All of these communities as a whole can bring additional economic benefits to cities as well as tourist attractions.

Examples in Germany: Westhavelland (dark sky reserve), Rhön (dark sky reserve), Fulda (dark sky community).⁵

References:

- 1 Fisher, Luci (2016): Understanding light pollution. In: Cities and lighting. The LUCI network magazine. No. 8-2016; pp 14-19.
- 2 Corten, Isabelle (2016): Participative light planning. In: The LUCI network magazine. No. 8-2016; pp 28-29.
- 3 Held, Martin/ Hölker, Franz: (2013): Ökologie der Zeit und künstliche Beleuchtung in der Nacht. In: Held, Martin/Hölker, Franz/Jessel, Beate (Edit.). Schutz der Nacht – Lichtverschmutzung, Biodiversität und Nachlandschaft. Bundesamt für Naturschutz. Bonn.
- 4 Gouvernement du Grand-Duché de Luxembourg (2018): Mouvement écologique (Leitfaden „Gutes Licht“ im Außenraum für das Großherzogtum Luxemburg. Wirkung nächtlicher, künstlicher Beleuchtung auf Fauna und Flora). Luxembourg. www.emwelt.lu
- 5 <https://www.darksky.org/our-work/conservation/idsp/communities/>
<https://www.darksky.org/our-work/conservation/idsp/communities/fulda-germany/>
<https://www.darksky.org/our-work/conservation/idsp/reserves/rhon/>
<https://www.darksky.org/our-work/conservation/idsp/reserves/westhavelland/>

See also: www.darksky.org