

# Light Pollution

in the South Devon Area of Outstanding Natural Beauty



## Introduction

When the sun sinks and it turns dimpsy (dusk) we have become accustomed to seeing street lights flicker into life.

Security lights illuminate premises; road and shop signs, roadside advertisements, gateposts, gardens and even architecturally interesting buildings are typically painted with decorative light at night. With the presence of so much artificial light obscuring our view of the night skies, the only real time we now get a true sense of darkness at night across most of our nightscapes is during short interruptions to power supplies.



**SW England:  
comparative levels of  
upward light during  
2000**

*US National  
Geophysical Data  
Center of the National  
Oceanographic and  
Atmospheric  
Administration, Boulder,  
Colorado USA*

Now an exception to the rule, a minority of areas in the South West of England form the region's dark night sky resource.

Even a small amount of poorly directed artificial light can significantly alter the night time landscape or 'nightscape'. The sense of tranquillity we seek at night time can be significantly undermined by bad lighting practice.

*"We light our environment with the same efficiency of someone trying to water a flower pot with a lawn sprinkler. What is needed is lighting that illuminates what you are looking at and not your eyeballs."* Robert Dick - Astronomy Instructor, Carlton University USA.

Though not advocating the complete removal of exterior lighting, action is required to redress our increasing desire for lighting at any cost and better control its effects. Addressing incidents of bad lighting practice is expected to significantly reduce levels of light pollution.

## What is light pollution?

Light pollution is the net result of our current use of artificial lighting at night and results in levels of light well above those found naturally. The principle cause is bad lighting practice, though effective, well designed lighting considered necessary for particular tasks is also a contributor to light pollution.

Bad lighting practice results in obtrusive lighting and wastes valuable resources: energy, CO<sub>2</sub> and ultimately your money. Light pollution not only affects our ability to clearly view the night sky or enjoy dark natural nightscapes, but can present serious physiological problems mainly through the disruption of sleep patterns and by affecting the quality of sleep.

The effects of light pollution extend to our environment too. Biodiversity is particularly vulnerable, where natural patterns of behaviour are affected though the impacts of artificial light are not yet fully understood. Where the result of light pollution on species has been well studied, behaviour significantly different to that observed in natural conditions has been identified. Recent studies of lesser horseshoe bats for example, has shown them to avoid areas with even very low levels of artificial lighting, resulting in fewer feeding areas and an increased risk of predation. It is clear that the precautionary principle must be applied to reduce possible effects on human health and the wider environment.



**Glare, sky-glow and scenic intrusion from a ground lit sign board.** South Devon AONB Unit

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- **Obtrusive Lighting**

Any light from a lighting installation that doesn't form the purpose for which it was designed and results in one or more of the following:

- **Light Trespass**

The spilling of light beyond the boundary of the property on which a light source is located

- **Sky Glow**

The brightening of the night sky above towns and cities

- **Glare**

The uncomfortable brightness of a light source when viewed against a dark background

- **Night time scenic intrusion**

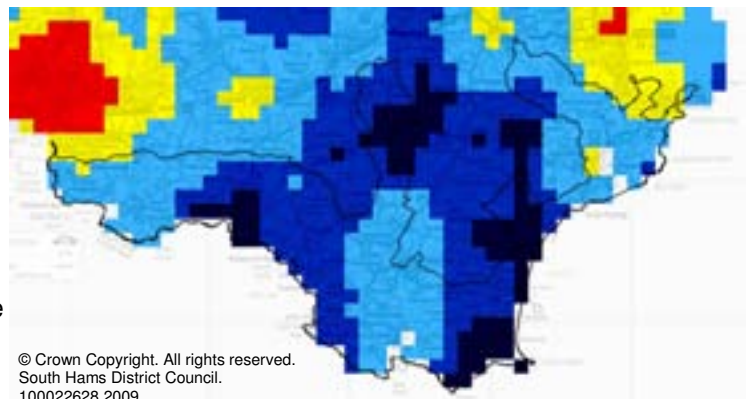
The effect caused by lights that are visually dominating and intrude on the natural night time landscape when viewed from a distance.

Research by the Campaign for Dark Skies in 2003 revealed that 55% of British children compared to 21% across the rest of the globe have never seen the Milky Way.

The good news is that unlike many other forms of pollution, and as demonstrated during powercut events, the effects of light pollution are completely reversible.

Across the country, it is this dark night sky resource that has been significantly affected by obtrusive lighting and resultant light pollution. Locally our dark night skies are under particular pressure. Only 8% of the South Devon AONB experiences truly dark skies at night; the lowest category of light pollution identified in recent satellite surveys. This compares with 36% for Devon and 24% for the SW region as a whole.

Between 1993 and 2000, the amount of upward wasted light across the AONB increased by 3.2% on average. 3% of the AONB saw an increase of more than 20%. The situation significantly worsened across 68% of the AONB.



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**South Devon AONB and local levels of upward light.**  
Data from the US NOAA with analysis by CPRE and Land Use Consultants.

## Why is this an issue for the South Devon AONB?

Natural nightscapes and dark night skies are defining special qualities of the South Devon AONB: they are of natural, cultural and scenic importance. Experiencing these valuable qualities contributes to a sense of tranquillity and remoteness.

These resources and the opportunities presented to view the spectacle of the starry night sky provide a valuable night time connection with nature.

Even areas shown as having dark night skies on satellite images can be affected by light pollution. The Blackdown Rings site and its environs within the mid Avon valley area of the AONB illustrates this effect. Despite its elevated position and being in an area classified as darkest in 2000, views of the night sky from the site are marred - to the east sky glow from Torbay and Totnes have a significant effect, as too do Kingsbridge to the south, Modbury, Ivybridge and Plymouth to the west. The net result is high levels of surrounding scenic intrusion and sky glow.

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## What can I do about it?

Whether you decide to take action at a household, business or community level, making simple considered changes can all have a significant positive effect.

Begin by questioning the purpose and presence of all external lights and reassess your own lighting needs.

**Reduce** the number of external lights you operate and their wattage.

**Replace** lighting that doesn't perform adequately.

**Modify** existing lighting where required and remedy bad lighting practice.



Well directed full cut-off lighting in use at Dartmouth Leisure Centre car park

South Devon AONB Unit

For lighting you feel is needed, follow some simple principles:

- Ensure lights are switched off when not required - manual switches, timers, photosensitive cells and motion detectors can all help with this.
- Do not over light – use the lowest wattage bulb possible to give you enough light, or bulb types that emit 'white light' and enable better colour recognition at lower intensities. Consider night time dimming outside hours of main operation if continual lighting is required.
- Use equipment designed to minimise the spread of light upwards – flat glass lenses and recessed bulbs - and carefully target light at the areas you really need it.

- Keep glare to a minimum through careful consideration of mounting positions, use of shields, baffles and louvres.

## Where can I find out more?

Other Information Sheets in the 'Dark Skies and Nightscapes' series providing more detail on ideas for action and the South Devon AONB Management Plan, containing the policy framework for the protected area, can be accessed from [www.southdevonaonb.org.uk](http://www.southdevonaonb.org.uk)

A range of other websites and publications provide useful information including:

- Guidance notes for the reduction of light pollution (2005) [Institute of Lighting Engineers](#)
- An assessment of the problem of light pollution from security and decorative light (2006) Temple. [DEFRA](#) Local Environment Quality: Light Pollution
- [Campaign to Protect Rural England](#) light pollution webpages containing a selection of useful background information including the report *Night Blight*.
- [Campaign for Dark Skies](#) web pages including *Frequently asked questions* and *Solutions and problems: good and bad lighting*.
- CELMA Guide on Obtrusive Light (2007) [European Lamp Companies Federation](#)
- [Globe at Night](#) family activity pack – observation guide, magnitude charts and observation data sheet.
- [Environmental Protection UK](#) Light Pollution leaflet
- [Devon County Council](#) Street Lighting Policy

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## Acknowledgements

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