

The South Downs International Dark Sky Reserve 'Moore's Reserve'

Dan Oakley





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Moore's Reserve (South Downs, England)



The eighteenth century Hainaker Windmill lit by moonlight. Photo by South Downs National Park Authority.

ABOUT

South Downs National Park is England's newest National Park, coming into full operation in 2011. The "Downs" are named for an area of chalk downland, deriving from a Celtic word meaning "hills". The Park spans 140 kilometers (87 miles) across southern England, stretching from St Catherine's Hill near Winchester, Hampshire, in the west to Beachy Head, East Sussex, in the east. This area hosts a permanent population of approximately 108,000 residents, and the area sees about 39 million individual visits per year.

The entirety of the Park lies within about 100 km of the edge of the greater London metropolitan area, among the most light-polluted metropolises on Earth. It is remarkable that any relatively dark areas remain between London and the south coast of England, particularly given aggressive housing development in the Sussex



DESIGNATED

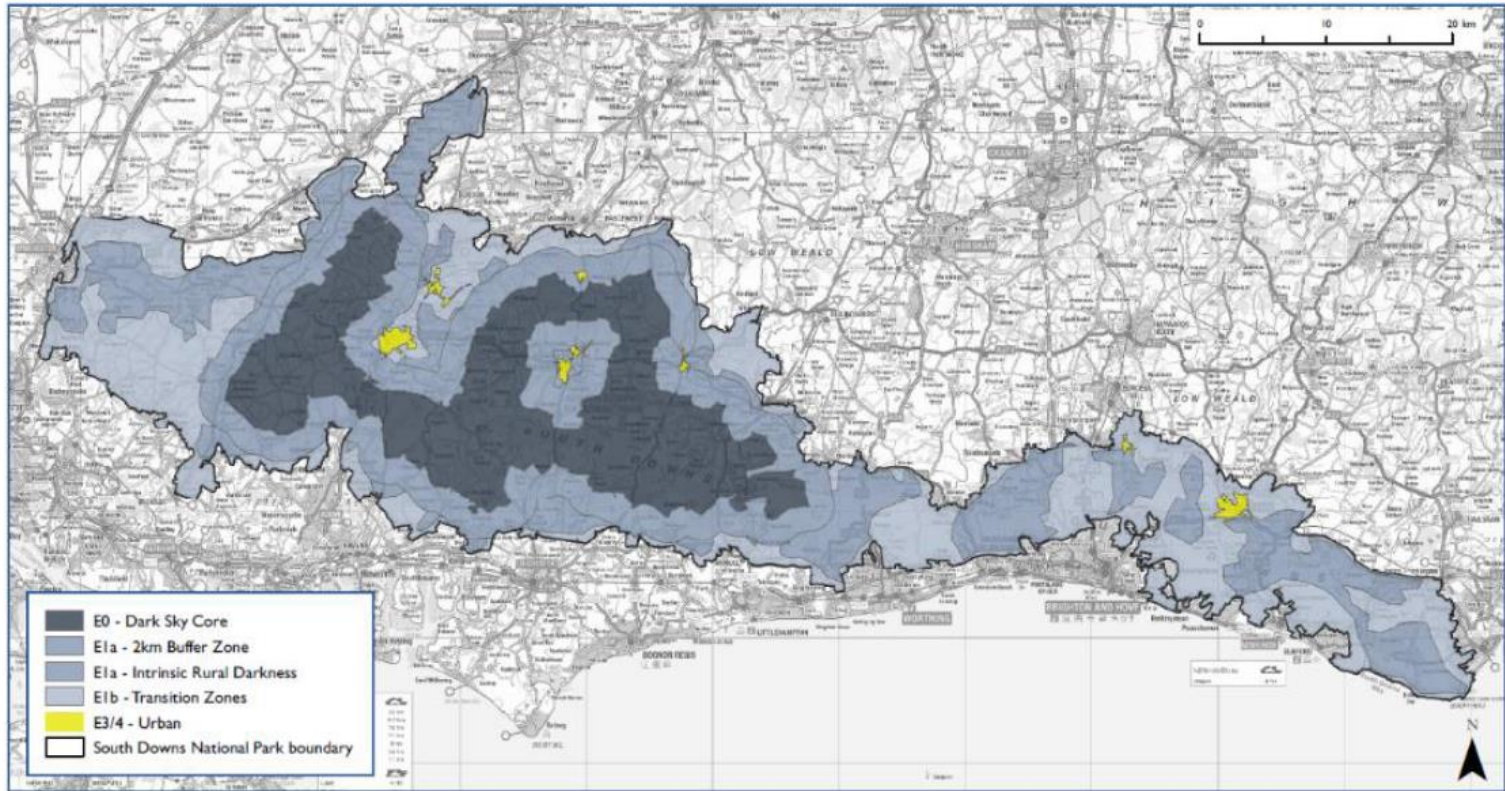
2016

CATEGORY

Dark Sky Reserve

ADDRESS

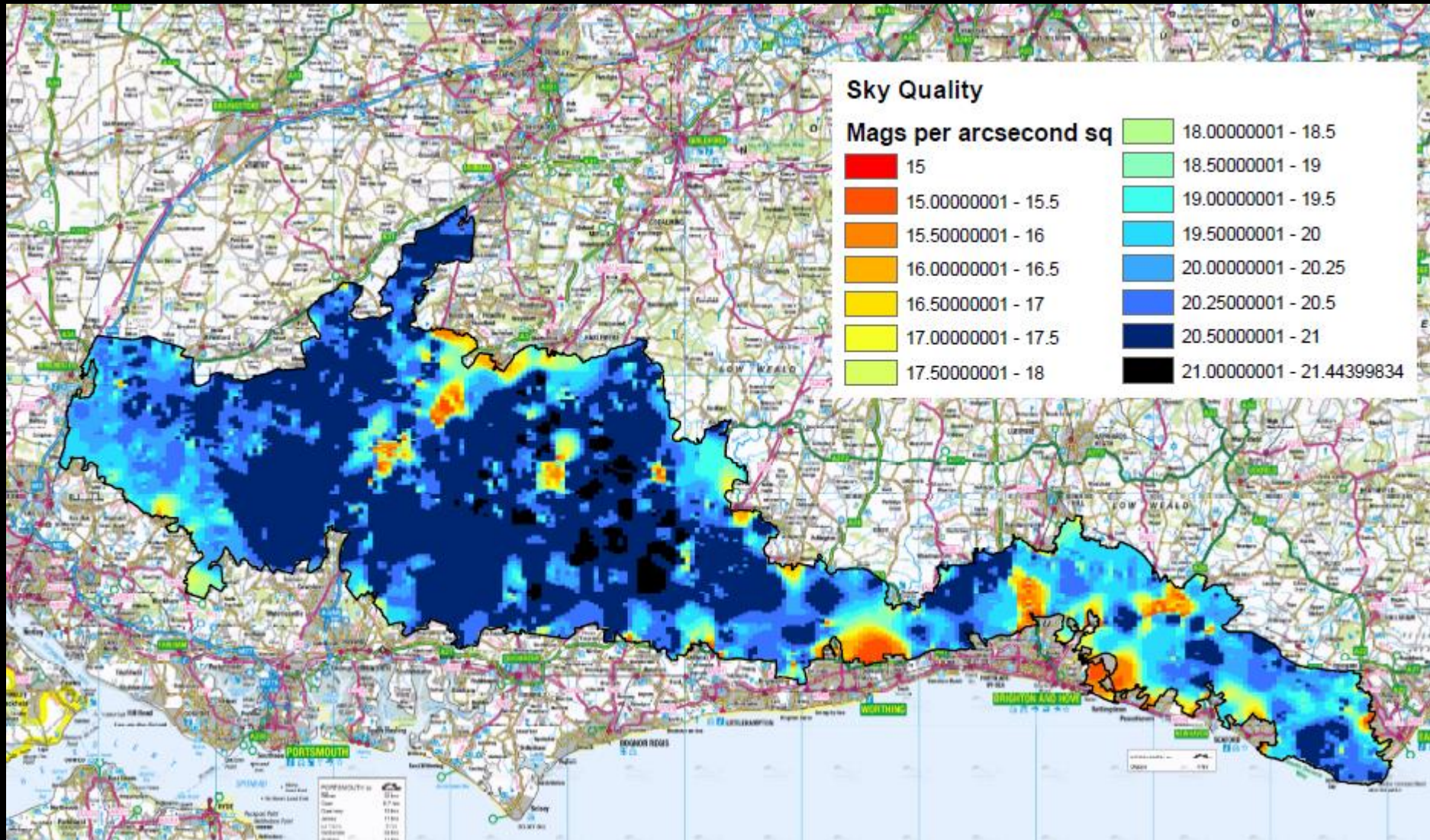
South Downs National Park

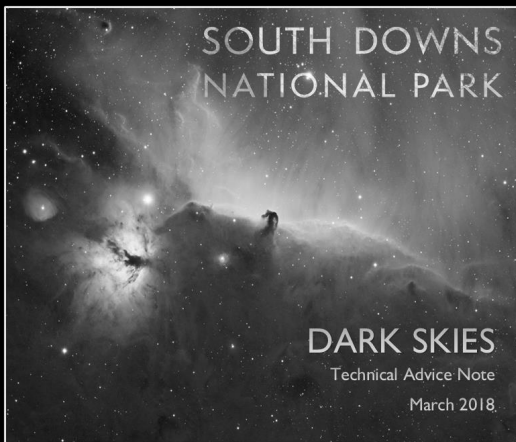


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Scale at A4 1:420,000

Figure 2 - South Downs International Dark Sky Reserve – Dark Zones

Sky Quality Measurements





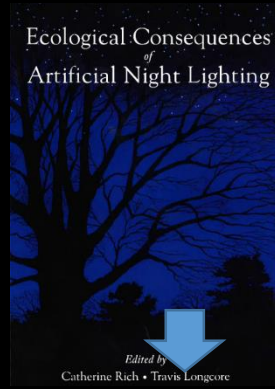
Existing Light Obtrusion Policy (90%)
 +
 Evidence based DNS Impact Policy (10%)
 +
 Shift context from obtrusion to DNS
 =
 SDNPA SD8

	INCLUSIONS	DESCRIPTION	REF
	Need		
1	Statement of client needs and parties comments	<ul style="list-style-type: none"> Is the lighting needed? 	8.2.1.1
	Determine Existing Baseline		
2	Existing lighting environment of the site	<ul style="list-style-type: none"> What lighting is currently on site? How is it used and what for? Are the lights dark sky compliant? Is there a potential for improvement? 	8.2.1.5 8.2.1.7
3	Survey of surrounding area night environment	<ul style="list-style-type: none"> What is the surrounding lighting environment? Are there streetlights nearby? Are there any alternate providers? 	
4	Identification of critical viewpoints	<ul style="list-style-type: none"> Are there any Dark Sky Discovery Sites nearby? Are there any nearby important habitat or wildlife sites? Is the site visible from any viewpoints? Is the site visible from any public routes or sites? 	8.2.1.3 8.2.1.4 8.2.1.5 8.2.3.5
5	Determination of Dark Zone	<ul style="list-style-type: none"> What dark zone is the site in? 	5.2
	DESIGN		
6	Lighting Design Objectives	<ul style="list-style-type: none"> What are the general lighting objectives? What standards or policies are to be referenced? Is it an expected design for the task? 	
7	Task Illuminance	<ul style="list-style-type: none"> What guidance standards have been used to reference lux levels? What levels of illuminance are to be used and why? Does the illuminance exceed dark zone policy? 	8.3
8	Calculated Predictions	<p>A lighting design should show</p> <ul style="list-style-type: none"> A Horizontal plan showing illuminance and uniformity levels across the site A vertical plan showing illuminance and uniformity levels across the site if buildings are to be intentionally illuminated Maintained averages (E_{ave}) calculation for task lighting areas – to be compared to guidance standards <p>Are the predicted averages consistent with guidance standards?</p>	8.3
9	Obtrusive light calculation	<p>A lighting design should show</p> <ul style="list-style-type: none"> How the lighting design meets the criteria as set out by the ILP for the determined zone when installed (not as bought) <p>Do any Luminaires exceed any of the ILP limits for the zone?</p>	8.1




International Commission on Illumination
Commission Internationale de l'Éclairage
Internationale Beleuchtungskommission

Ecological Consequences of Artificial Night Lighting



Edited by
Catherine Rich • Travis Longcore

Guidance Notes for the Reduction of Obtrusive Light (CIE/ILP, 2017)



GUIDANCE NOTES FOR THE REDUCTION OF OBTRUSIVE LIGHT

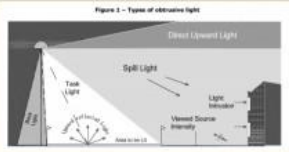

"Think before you light - The right amount of light, where wanted, when wanted."

Man's invention of artificial light has done much to safeguard and enhance our night-time environment but, if not properly controlled, **obtrusive light** (sometimes referred to as light pollution) can present serious physiological and ecological problems.

Obtrusive Light, whether it keeps you awake through a bedroom window or impedes your view of the night sky, is a form of pollution, which may also be a nuisance in law and which can be substantially reduced without detriment to the lighting task.

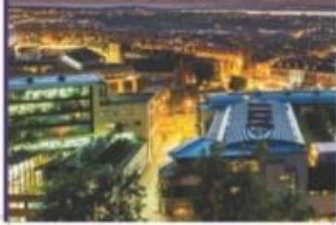
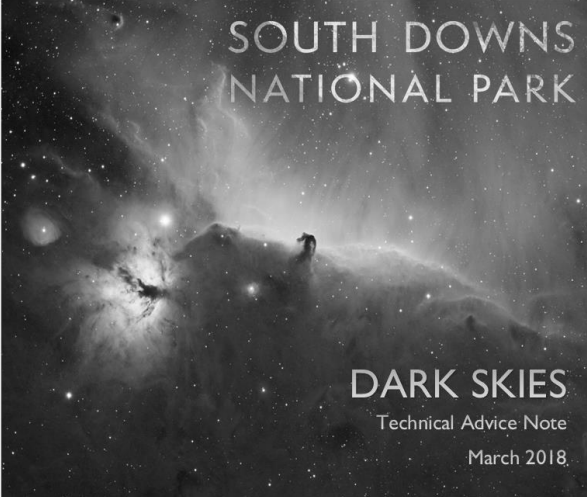
Sky glow, the brightening of the night sky, **glare** the uncomfortable brightness of a light source when viewed against a darker background, and **Light Extrusion** ("Trespass"), the spilling of light beyond the boundary of the property or area being lit, are all forms of obtrusive light which may cause nuisance to others and waste money and energy. **Think before you light**, is it necessary? What effect will it have on others? Will it cause a nuisance? How can you minimise the problem?

Figure 1 - Types of obtrusive light

PROFESSIONAL LIGHTING GUIDE 10

GUIDANCE ON UNDERTAKING ENVIRONMENTAL LIGHTING IMPACT ASSESSMENTS





SOUTH DOWNS NATIONAL PARK


DARK SKIES

Technical Advice Note
March 2018.

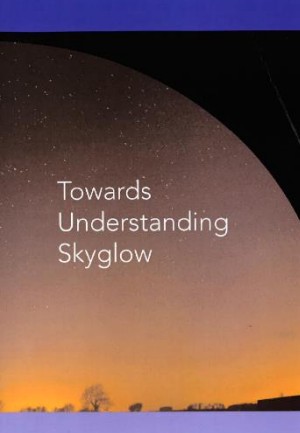
Lighting Guide 6: The exterior environment



Lighting for the built environment




Towards Understanding Skyglow





PROFESSIONAL LIGHTING GUIDE 15

THE BRIGHTNESS OF ILLUMINATED ADVERTISEMENTS

Institution of Lighting Engineers

Technical Report 24 Guidance on the development of a public lighting policy



Brecon Beacons National Park Authority

Local Development Plan Policy 12
Light Pollution & Obtrusive Lighting

March 2015

Supplementary Planning Guidance



Dark Skies Supplementary Planning Document

Preserving our skies:

Light pollution and the need for darkness in the Borough

Dumfries and Galloway Council
LOCAL DEVELOPMENT PLAN 2

Dark Skies
Friendly Lighting

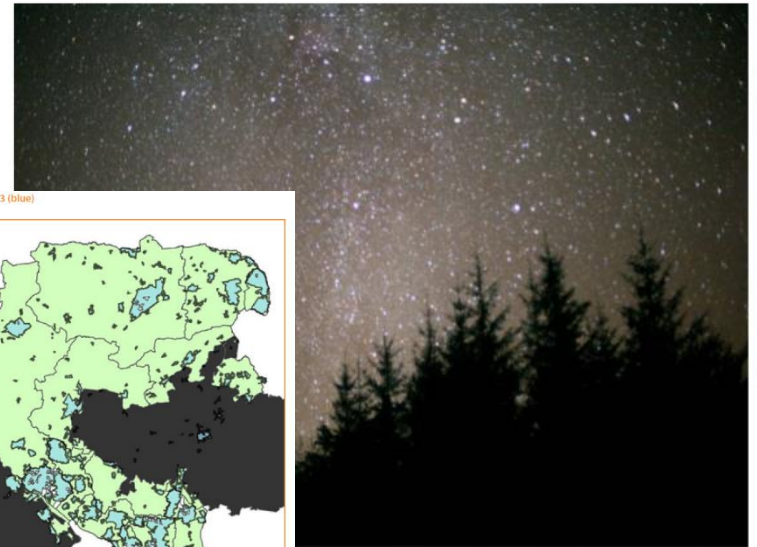
Draft Supplementary Guidance - January 2018



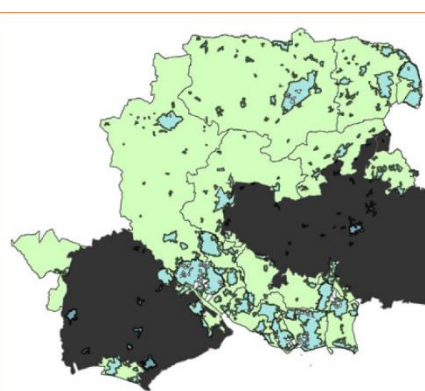
Snowdonia National Park Authority
Supplementary Planning Guidance
Obtrusive Lighting (Light Pollution)
October 2016

14

The Dark Sky Park Lighting Supplementary Guidance



Zones E1 (black), E2 (green) and E3 (blue)



Good lighting, gone bad

SDNPA Addressing
Surface Illumination
Appropriateness
And initial need through
hierarchy



SD8 and the Technical Advice Note

- Is the light needed in the first place?
- Is it an appropriate light source for the zone?
- Is the impact minimized by effective design?



Zone	Description	SQM Range	ILP/CIE Guidance	Landscape Impact	Max Lux	Curfews		
						Night Usage	Evening	Astronomical
E0	Dark Sky Core	20.5+	✓	✓	✓			✓
E1(a)	Intrinsic skies	20 to 20.5	✓	✓	✓		✓	
E1(b)	Rural Transition	~15 to 20	✓	✓	✓	✓		
E3/4	Urban	< 15	✓	✓		✓		

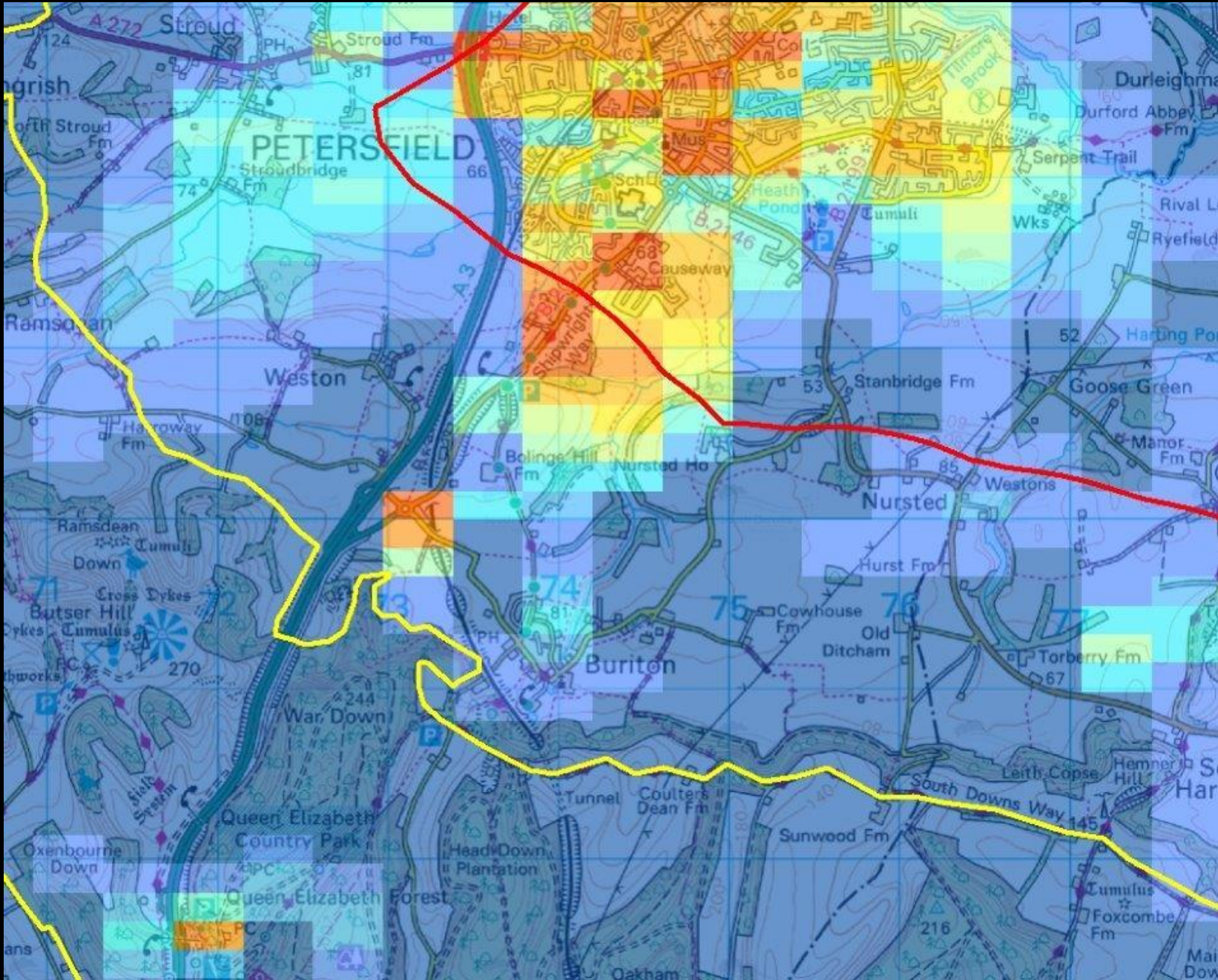
Community Involvement



The screenshot shows the website for the International Dark Sky Association (IDA). At the top left is the IDA logo, which includes the letters 'ida' in a stylized font with five stars above it, and the full name 'INTERNATIONAL DARK-SKY ASSOCIATION' to its right. Below the logo is a dark blue navigation bar with white text for 'ABOUT', 'OUR WORK', 'LIGHT POLLUTION', 'LIGHTING', 'GET INVOLVED', and 'WAYS TO G'. Underneath this is a 'Quick Links' section with a dark background and white text for 'FAQ', 'Concerned Neighbors', 'Dark Sky Week', 'Find A Chapter', 'Find A Dark Sky Place', and '"Losing The Dark" Fil'. The main content area has a white background and a breadcrumb trail: 'Home » International Dark Sky Places » International Dark Sky Communities'. Below this is the main heading 'International Dark Sky Communities'. A large image of a starry night sky is featured, with the text 'Isle of Coll (UK)' centered at the top of the image. The image has a dark blue gradient and a bright star in the center. Small white arrows on the left and right sides of the image indicate it is part of a carousel.

DARK SKY
DISCOVERY

Welcome...
...to the UK's dark skies - inspiration for everyone.







DISCOVER DARK NIGHT SKIES!

SOUTH DOWNS NATIONAL PARK

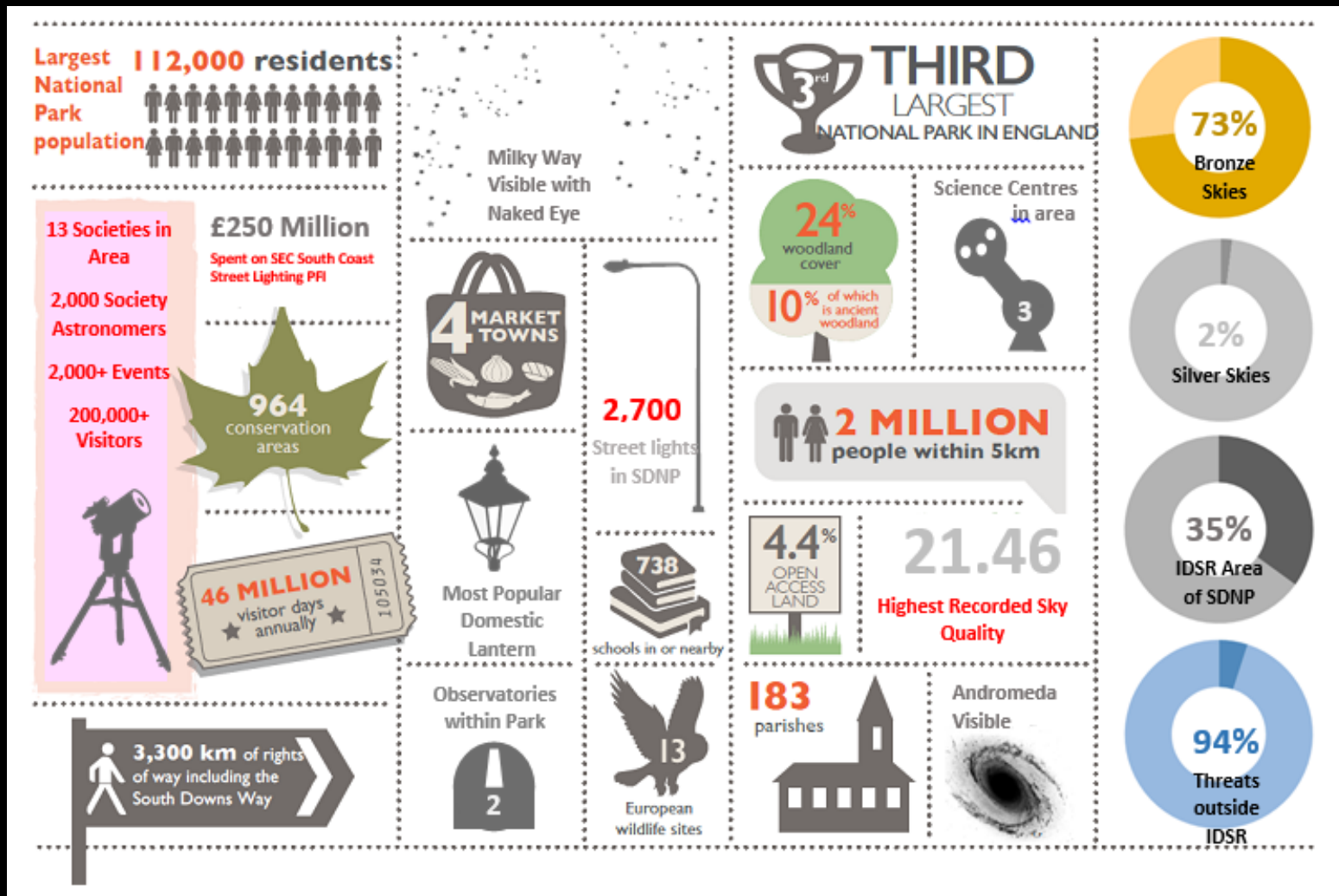
IN THE SOUTH DOWNS NATIONAL PARK

"My earliest memories of space were not actually from watching the television, it was as a young boy looking out of my bedroom window on clear, cloudless nights up into the starry skies and thinking and wondering about the Universe." **Tim Peake**

southdowns.gov.uk/dark-night-skies



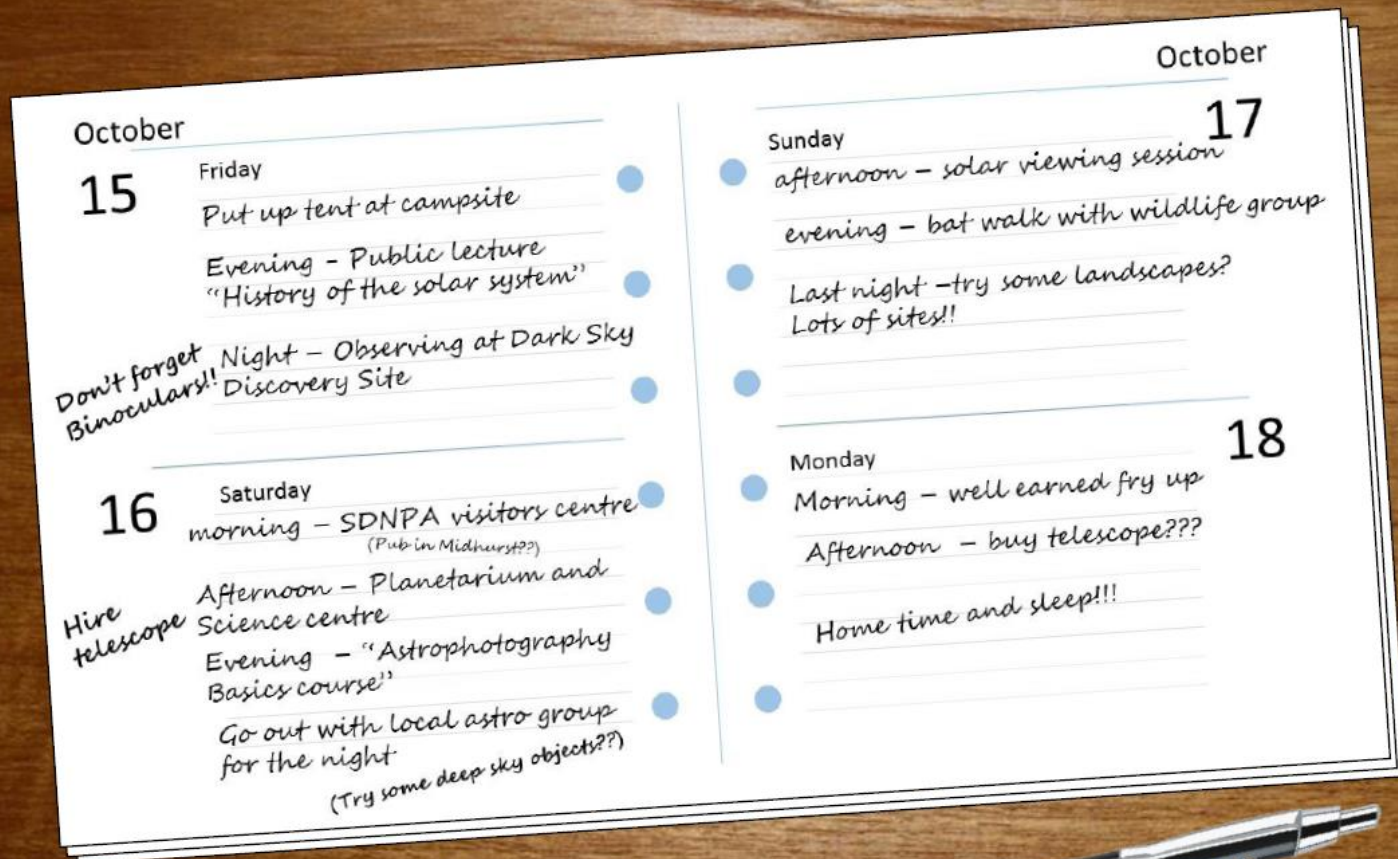
Future possibilities - Astro tourism, visitors, experiences



AN IDEAL WEEKEND IN THE DEEP DARK DOWNS

The skies are clear, the sky quality values are high, and you're in the mood to try astronomy and experience dark skies in the South Downs. But where to go? What to do? The South Downs National Park has a bit of everything to keep the eyes pointing firmly up to the sky. There are regular public lectures and events with astronomy groups and experts offering plenty of opportunities to immerse yourself and experience some of the best skies in the South.

All of this within a 30 minute drive from some of the most densely population regions in Europe.



DARK NIGHT SKIES

“ ‘To see our amazingly tiny piece of the cosmos on such a huge galactic scale always makes me think about the purpose of it and what else is out there. But above all it makes me smile and makes me certain that we should be doing all we can to protect it’.

Dan ‘Dark Skies’ Oakley, Lead Ranger Wealden Heaths

The examples below share some ideas on how you can relate your business in any of several ways to the designation of the South Downs as an International Dark Sky Reserve. We can't cover everything so use them as inspiration to create your own experiences or share them as they are if they suit your needs.





EMBRACE THE DARKNESS

A long-exposure photograph of a road at night. The road curves into the distance, with light trails from cars creating vibrant streaks of red, white, and blue. The sky is dark and filled with stars, with the Milky Way galaxy visible as a bright, hazy band of light stretching across the upper left portion of the frame. The foreground shows dark silhouettes of trees and bushes.

Dan Oakley. Dark Skies Dan
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