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INTERNATIONAL DARK-SKY ASSOCIATION

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FROM THE EXECUTIVE DIRECTOR

I am not a night owl. This can be problematic when you work with dark-sky champions around the world.

My ability to stay awake was tested to the full last November during our first global conference: Under One Sky. This 24-hour virtual conference brought together 750 people from 50 countries to share stories and make connections. We heard how advocates from Serbia, to Nigeria, to China, Australia, and Guatemala, are working to protect the night from light pollution. The stories of innovation from around the world were deeply inspiring.

In Nigeria, Olayinka Fagbemiro works in Internally Displaced Persons camps to provide pandemic response, such as masks and handwashing facilities, and telescopes. In India, Sonal Asgotraa is working with female entrepreneurs to develop astro-stays in the Himalayas to promote dark skies' economic benefits. Money from these stays is being invested in solar water heaters and in greenhouses to grow fresh food. In Costa Rica, Alejandra León-Castellá shared how she is extending 50 years of the environmental movement into the sky to protect the stars.

As you know, light pollution is a global issue. Today, 83% of people around the world live under a light-polluted sky. While the problem is global, the solutions are necessarily local. An approach that works in Serbia may not fit South Dakota and vice-versa. To address this, IDA focuses on three areas.

First, as you will read in this issue of Nightscape, IDA's new values-centered approach to nighttime conservation establishes new guidelines. It recognizes that, to be successful, they should be interpreted and applied locally. Second, we will continue to create opportunities for dark-sky champions worldwide to connect and learn from one another, like the global conference. Third, we will support the International Dark-Sky Places program's growth as a high-profile demonstration of how dark-sky protection inspires action.

One example of this approach is close to my heart. As a Brit, I am encouraged to see the dark-sky movement's growth in the United Kingdom (showcased in this issue). In fact, my parents live just outside the newly established Yorkshire Dales National Park International Dark-Sky Reserve. The growing number of dark-sky places has spurred interest in light-pollution prevention more broadly. It's now encouraging to see this issue considered by Parliament. I know advocates worldwide are taking notice and thinking about using a similar approach in their countries.

With your support, the dark-sky movement will continue to grow and learn from these successes. I hope you find inspiration in the stories that follow.

Keep looking up,

Ruskin Hartley ruskin@darksky.org



CONTENTS

SPEED OF NIGHT: RACING TO PROTECT BRITAIN'S DARK

DARK-SKY BOOKLIST BY BRITISH AUTHORS

NEW CERTIFIED INTERNATIONAL DARK SKY PLACES

A SHORT HISTORY OF LIGHT POLLUTION GUIDANCE



South Downs, Photo by Dan Oakley

THE UK IS LEADING THE WAY IN THE FIGHT AGAINST LIGHT POLLUTION

Speed of Night: Racing to Protect Britain's Dark

BY MEGAN EAVES

Dark skies are all the rage in the United Kingdom. The past two years have seen several new International Dark Sky Places (IDSPs) awarded in the UK, including the Yorkshire Dales and North York Moors Dark Sky Reserves and Davagh Forest Park – the first IDSP in Northern Ireland. But light pollution work is not new here: the Commission for Dark Skies, an anti-light-pollution campaign group run by the British Astronomical Association, has led the dark skies movement in Britain since 1989. So why the recent uptick in attention?

Interest in the night sky has jumped thanks to the new IDSPs and resulting media coverage. But growing alarm about the climate crisis and recent legislation on netzero carbon targets have created new concern about the effects of light pollution. Kathryn Beardmore, Director of Park Services at the Yorkshire Dales National Park Authority, says, "Our fabulous nightscape is something visitors often comment on. There is increasing awareness about the true beauty of the night sky – the way it connects us with nature and fills us with a sense of wonder – and an increasing realization that we can all do our bit to reduce light pollution."

And of course, since last spring, continued lockdowns across the UK have relegated much of the British population to their homes, sparking new interest in stargazing and urban wildlife spotting as people crave a connection to the natural world.

Dark Skies over Parliament

In 2016, South Downs National Park in southeastern England achieved dark sky reserve status, highlighting that dark skies are within reach of some of the UK's most heavily urban areas, including London. The community around this dark sky reserve values its night skies and has rallied to defend them.

Andrew Griffith is a Member of Parliament (MP) for Arundel and the South Downs, where the dark sky reserve is located. Shortly after being elected in 2020, he worked with the Astronomer Royal, Lord Martin Rees, to form an All-Party Parliamentary Group (APPG) dedicated to dark skies. APPGs are informal, cross-party groups created by MPs and Members of the House of Lords who share a common interest. They can be influential in directing new legislation.

Mr. Griffith says, "I founded the [APPG for Dark Skies] so that future generations may see the stars and the Milky Way – something that is already impossible in many parts of the UK. The idea to form the group came from my personal experience as well as representing a district which contains one of the UK's darksky reserves."

After a public consultation, the APPG for

"There is increasing awareness about the true beauty of the night sky – and an increasing realization that we can all do our bit to reduce light pollution." –Kathryn Beardmore, Yorkshire Dales National Park Authority Vibrant Milky Way over Norber Ridge by Matt Gibson Yorkshire Dales National Park Dark Skies issued its "10-point plan" – a set of government policies on light pollution that it hopes to incorporate into national legislation.

"We will seek partnerships with organizations willing to implement modest changes recommended by our policy plan, to demonstrate that, through their wider application in the planning and regulatory system, we can stem and indeed reverse the tide of light pollution," says Griffith.

Together, the APPG, Commission for Dark Skies, and IDA's Delegates are creating critical momentum to tackle biodiversity loss, climate change, and the adverse health effects caused by light pollution.

For more on the APPG for Dark Skies, visit **appgdarkskies.co.uk**

FIVE DARK-SKY BOOKS BY BRITISH AUTHORS

Under the Stars: A Journey Into Light (2020) MATT GAW

The author's nighttime walks around Britain lead him to reconnect with the night and find a newfound awe of darkness.

Dark Skies (2019) TIFFANY FRANCIS-BAKER

Travel stories from across Britain and Europe to experience the night, from rural to urban.

Incandescent (2019) ANNA LEVIN

Journalist Anna Levin reveals her fraught relationship with lighting changes, and she explores its impact on nature and our well-being.

The Art of Urban Astronomy (2019) ABIGAIL BEALL

A beautiful, practical guide to astronomy and stargazing aimed, particularly at urban dwellers.

Dark Matters (2015) NICK DUNN

Part-practical, part-poetry, in this book, urban designer Nick Dunn explores the city at night and muses on the rich potential of the dark for our senses. Kozushima Island IDSP - Japan Voyageurs National Park IDSP – Minnesota, U.S. Reimers Ranch Park IDSP – U.S. Jordanelle State Park IDSP – U.S. Kodachrome Basin State Park IDSP – U.S. Rockport State Park IDSP – U.S. Quetico Provincial Park IDSP - Canada Valles Caldera National Preserve IDSP – U.S.

NEW PARKS

Fremont Indian State Park IDSP – U.S. Sky Meadows State Park IDSP – U.S. Natural Bridge State Park IDSP – U.S. Goosenecks State Park IDSP – U.S. Pipe Spring National Monument IDSP – U.S. Naturpark Attersee-Traunsee

IDSP - Austria

Mesa Verde National Park IDSP – U.S.

NEW Certified International Dark Sky Places

N E W R E S E R V E S

North York Moors National Park IDSR – United Kingdom

Yorkshire Dales National Park IDSR – United Kingdom

Milky Way Ravenscar North York Moors, Steve Bell



JOIN THE NIGHTHAWK MONTHLY GIVING CLUB!

Nighthawk members provide a predictable foundation of operating income important for our work. Monthly giving has benefits for both you and IDA. As a small thank you, when you join the Nighthawk Monthly-Giving Club with <u>a monthly investment of \$10.00</u> you'll receive a **Nighthawk member decal** to show your support!

CHAPTER HIGHLIGHTS

IDA China

The IDA Beijing chapter has been advocating for light pollution control in China since 2012 by organizing public events, offering college lectures, publishing articles, getting media exposure, submitting national legislation proposals, and helping several sites preparing for IDSP designation applications. They recently initiated China's own Dark-Sky Alliance and are ready for the next stage.

IDA Kenya

IDA Delegate Samyukta Manikumar implemented an astrotourism training pilot project in Kenyan lodges with a dark sky awareness component. She is also currently consulting on a dark sky landscape interpretation project in Slovenia, and working on raising awareness about light pollution through writing, media, and personally guided stargazing tours.





Alejandro Sommer, IDA Delegate in Argentina, worked with the local government to enact a law that will take effect May 8, 2021, where it will be sanctioned that the entire province must adhere to the dark sky lighting requirements of IDA for the conservation of natural spaces and dark skies.



National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds, Commonwealth of Australia 2020

A Short History of Light Pollution Guidance

IDA was founded on a simple premise: dark skies, not dark ground. Over the past three decades, our guidance has changed but has always adhered to this simple concept. Earlier this year, the IDA Board of Directors updated our guidance by adopting a "values-centered" approach to lighting. You can read more about this at darksky.org/values-centered-lighting-resolution.

To understand why this change was necessary, it is helpful to understand how our guidance has evolved.

Shielding

Initially IDA focused on shielding lights to prevent them from shining light directly into the sky. This was when lowand high-pressure sodium lamps were the norm. The lamps had admirable qualities; they were relatively efficient, and their warm amber light was less impactful on the nighttime sky and environment. But they were hard to control and tended to radiate light upward — hence IDA's call to install shields.

In the early 1990s, the invention of high-power blue-lightemitting diodes (LEDs) set the stage for the solid-statelighting (SSL) revolution. At the heart of every white LED is a blue LED with special coatings. The coatings absorb the blue light and radiate it as other colors, giving the appearance of "white" light. But lurking under the surface, blue light is still emitted, often in large quantities. Light in the blue part of the spectrum is the most significant contributor to sky glow. And many of Earth's inhabitants, including people, are particularly sensitive to this blue light. It disrupts the natural circadian rhythm of animals, insects, and plants. It is often fatally attractive to birds and insects, and is correlated with a range of devastating diseases in people.

Color

In 2014, when Professors Isamu Akasaki, Hiroshi Amano, and Shuji Nakamura were awarded the Nobel Prize for this discovery, bright-white LED lights were sweeping across the planet. Essentially a massive unplanned environmental experiment was underway. The promise of energy efficiency came at a high price for anyone concerned with light pollution. In 2010, IDA was among the first to sound the alarm. We published guidance on blue light and recommended the installation of light sources only with a correlated color temperature of 3,000K or less.

But despite this guidance, the world has continued to get brighter and light pollution is growing globally on average at twice the rate of population growth. In 2020, the United States Department of Energy estimated that approximately half of all street lights, a major source of light pollution, have been replaced with LEDs. The future of our night sky depends, in part, on how the remainder are replaced.

A Holistic Approach

To reduce light pollution, all Five Principles for Responsible Outdoor Lighting must be considered simultaneously. Building on these high-level principles, adopted in 2020, our valuecentered approach offers common sense guidance for the use of light at night. It is



This playing field in Sahuarita, AZ is just 12 miles from the Mt. Hopkins professional telescope facility and yet has no impact on its operational capabilities. Photo by Pete Strasser

intended to provide flexibility in design in order to encourage the update of the lighting principles. This new approach further holds that:

- Intrinsically dark places should remain dark.
- Sensitive areas should use light sources with zero bluelight emission.
- All lights should be shielded and pointed down.
- Don't use too much light; it does not improve visibility.
- For most common lighting situations, the IDA recommends sources rated at 2200K or less.
- Where higher CCT-rated sources are needed, additional steps should be taken to reduce light pollution through careful aiming, low light levels, and controls.

Recent technological developments mean practical impediments to adopting this guidance no longer exist. By following these simple steps, we are confident that IDA can live up to its original promise of dark skies, not dark ground.



Downtown Geneva warm white LED light, Switzerland, Photo by Deborah Moran



SHOW YOUR PASSION FOR THE CAUSE!

A great way to support the IDA is to purchase our customized apparel and other items. Check them out at **bonfire.com/store/ idadarksky/**

LIGHT TO PROTECT THE NIGHT

IDA's Five Lighting Principles for Responsible Outdoor Lighting

1. USE LIGHT ONLY IF IT IS NEEDED

All light should have a clear purpose. Consider how the use of light will impact the area, including wildlife and their habitat.

2. DIRECT LIGHT SO IT FALLS ONLY WHERE IT IS NEEDED

Use shielding and shaping methods to target the direction of the light beam so that it does not spill beyond where it is needed.

3. USE LIGHT ONLY WHEN IT IS NEEDED

Use active controls such as timers or motion-detectors to ensure that light is available when it is needed and turned off or dimmed when it is not needed.

4. LIGHT ONLY TO THE BRIGHTNESS NEEDED

Use the least amount of light needed.

5. MINIMIZE BLUE LIGHT TO THE AMOUNT NEEDED

Whenever possible, use warm color lights at night.