

Where to find out more

Visit one of our three National Park Centres where you will find a range of resources including books, binoculars and telescopes (for sale and hire) to help you get started:

Dulverton National Park Centre
7-9 Fore Street, Dulverton, TA22 9EX
Tel 01398 323841

Dunster National Park Centre
Dunster Steep, TA24 6SE
Tel 01643 821835

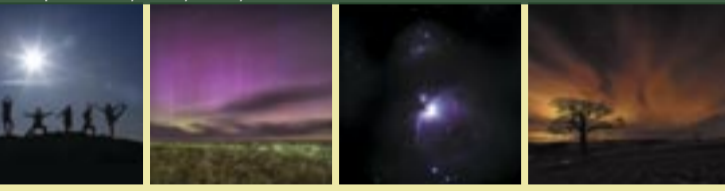
Lynmouth National Park Centre
Lynmouth Pavilion, The Esplanade,
Lynmouth, EX35 6EQ
Tel 01598 752509

Contact us:

Exmoor National Park Authority
Exmoor House
Dulverton
Somerset, TA22 9HL
Telephone: 01398 323665
info@exmoor-nationalpark.gov.uk
Social media: @exmoornp



Cover photo: Tawny Owl by Harvey Grenville



www.exmoor-nationalpark.gov.uk

What is Light Pollution?

The term "light pollution" refers to the adverse effect of any artificial light on the environment. It is characterised by the orange "sky glow" above our towns and cities, caused by street lights, glare and lighting that spills beyond its intended lit area.

We all rely on artificial light to live our lives, but badly designed lighting wastes energy, can disrupt wildlife, impacts on our wellbeing and prevents us from enjoying our night skies. Here on Exmoor we are working together to make sure that lighting is well designed, efficient and does not affect our wonderful dark skies.

Help save the Dark!

1. Light only what you need.
2. Switch lights off when they are not needed.
3. Use only downward facing lights which are shielded to prevent upward light spill.
4. Use bulbs that are warm white. Blue-white lights are most detrimental to wildlife and humans.

Why is it Bad for Wildlife?

All animals have evolved without the influence of artificial light, and many of them are nocturnal so they are only active during the hours of darkness.



Birds when migrating and insects such as moths use the moon and stars to navigate in ways that we do not yet fully understand; artificial light may confuse them and make this much harder.

When insects are attracted to artificial lights it may change how easy it is for species such as bats to feed on them. This affects the natural ecological balance. The proliferation of night time lighting, and especially the change towards high intensity LEDs with a blue-rich spectrum mimicking daylight, can be harmful to living things that have evolved for millions of years within a day-night cycle. The blurring of this natural rhythm has resulted in some alarming impacts on birds, insects, bats and plants as well as humans.

Three things to find for beginners.

There are almost limitless stars, planets, constellations, galaxies, meteors and other objects to discover - but here are three of the most easily recognised features to get you started:



Orion - The Hunter

Orion is perhaps the most easy constellation to recognise in the winter skies of the Northern Hemisphere and is visible above Exmoor between November and February. Named after a great hunter from Greek mythology, he is usually represented with a belt formed by the three prominent stars - Alnitak, Alnilam and Mintaka, along with a raised sword and a shield. Orion is very useful as an aid to finding other stars. For example, by extending the line of his belt south eastwards you can find Sirius, the brightest star in the night sky.

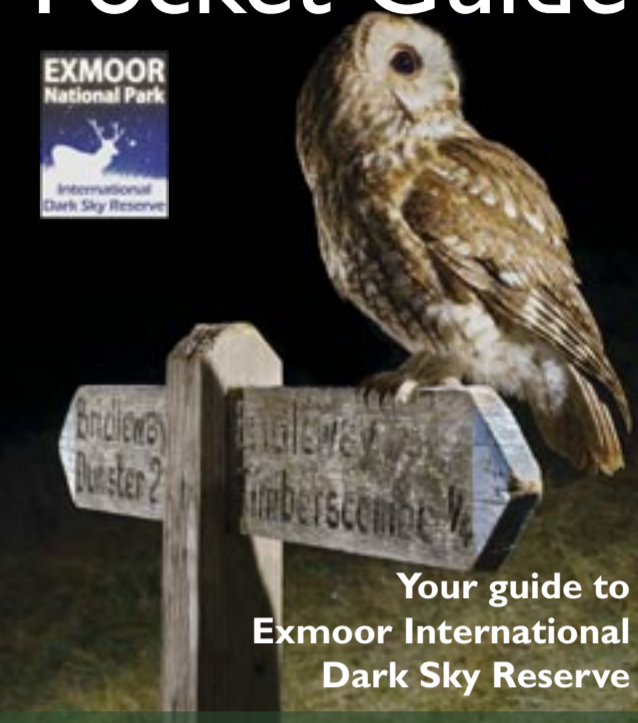
The Moon

The moon, Earth's only natural satellite and the second brightest object in our sky after the sun is a mere 384,400 km away and has fascinated mankind since the dawn of time. Known as Luna to the Romans and Selene to the ancient Greeks, the moon was often considered a female force in contrast to the masculine sun. The gravitational pull of the moon draws the oceans' water towards it and influences our twice daily tides. Our months are based around the approx 28 day cycles of the moon's phases. The moon makes an ideal starting point for astronomy as even fairly basic binoculars will soon reveal the surface pockmarked by millions of years of meteorite impacts

The Plough

Also known as the Big Dipper, due to its resemblance to a large ladle, the Plough has been recognised as a feature in the night sky by different cultures around the world for countless years and is referred to as The "Seven Stars" in the Bible and "The Bear" in Homer's *Iliad*. The Plough is not in itself an official constellation but rather the brightest seven stars of the constellation Ursa Major or Great Bear. Like Orion, the Plough, visible all year round in the Northern Hemisphere, is very useful for navigating the night sky. See Starcharts overleaf to find out more about The Plough.

EXMOOR National Park Dark Skies Pocket Guide



Your guide to Exmoor International Dark Sky Reserve



EXMOOR

Europe's First International Dark Sky Reserve

Exmoor National Park is recognised as one of the finest landscapes in the UK. Its deep valleys, high cliffs, wide open moorlands and clear streams provide inspiration and enjoyment to both locals and visitors. What is less well known is that Exmoor is also an amazing place to marvel at the wonders of the night sky and one of the few places in England where low levels of light pollution allow us to experience night skies that have sadly disappeared from much of the country.

In recognition of our dark skies and the work we are doing to keep them that way and help people enjoy them, Exmoor National Park was designated Europe's first International Dark Sky Reserve in Autumn 2011 by the International Dark Sky Association.



Engine House View by Harvey Grenville

Discovering Dark Skies

When visiting Exmoor, it's worth checking out these opportunities for enjoying and getting the most from our dark skies:

Dark Sky Discovery Trail

This flat 2 mile walk is ideal for all the family and will take you on a mini adventure onto open moorland with 360° views of the starry skies above. Even if the sky is overcast it will be an exhilarating experience, surrounded by the sounds of Exmoor at night.

See exmoorwalks.org/darksky for route info and to watch a video about the Trail.



Mother Goose Films

Dark Sky Friendly Businesses

We have expert guides and accredited accommodation hosts to help you enjoy our dark skies.



Many of the accommodation providers have telescopes, binoculars and other stargazing resources for your use.

Dark Sky Discovery Hubs

We have several sites across Exmoor where stargazing events are run all year round.



Pollimore Inn, North Molton



Milky Way over Wimbleball by Sam Binding

More information available on the dark skies page of our website: www.exmoor-nationalpark.gov.uk/stargazing

What is a Dark Sky Reserve?

Dark Sky Reserves are places that have exceptionally starry skies and have made a commitment to work to protect them. Exmoor National Park Authority, Devon County Council, Somerset Council, landowners, businesses, individuals and communities within Exmoor have all worked together to reduce light pollution and are continuing to work together to keep our nights dark and full of stars.



Links

If you would like to find out more about astronomy, then there are some great resources online, here are just a few:

- www.gostargazing.co.uk
- www.darksky.org
- www.nasa.gov
- www.exmoor-nationalpark.gov.uk/stargazing



Astro Party © Jim Johnston

Did You Know?

Light from the sun takes eight minutes to reach Exmoor here on planet Earth.

If the sun was the same size as the dot on this letter 'i', then the next nearest star would be ten miles away.

If you could travel at the speed of light (186,000 miles per second) it would take 100,000 years to cross our galaxy, the Milky Way.

Here on Exmoor you are spinning at around 714 mph as the Earth turns. At the same time you are travelling at 67,000 mph as our planet orbits the sun.

Even on the clearest night on Exmoor, the human eye can only see about 3000 stars. There are an estimated 100,000,000,000 stars in our galaxy alone!

The atmosphere on Earth is proportionately thinner than the skin on an apple.

Lyrid Meteor by Shaun Davey

Top Tips for Stargazing on Exmoor

Stargazing is easy - just go outside on a clear night and look up. Wherever you are there will be something to see. However there are some things that you can do that will help to make your experience really special. Here are some simple tips to help you get the best out of your stargazing:

When to go
Stargazing on Exmoor is an all year-round activity, and any clear night will provide plenty to see. The darker months provide longer nights and the chance for younger astronomers to enjoy some pre-bedtime observing. March and April can be particularly good months for observing in the UK, and late summer and autumn often provide the best chance of seeing a shooting star.

- Before you go:**
- Check the time of sunset, and aim to start observing at least an hour and a half later - to allow the sky to become properly dark.
 - As beautiful as the moon is - the best time for seeing the stars is when the moon is not in the sky, as moonlight can make it harder to see the dimmer stars.

- What do you need to get started?**
- **Your eyes:** It's a really good idea to get familiar with the night sky just using your naked eyes. If you are ready to invest in binoculars or telescopes then get in touch with your local astronomical club or society for expert advice.
 - **A red torch:** Your eyes can take up to ten minutes to fully adjust to the dark and enable your "night vision" to allow you the best views of the stars. During this time avoid looking at any bright lights. Red lights, such as a rear bike lamp, are much better at preserving your night vision than white lights.
 - **Starcharts:** There are many different resources available that will show you what you are looking at - as the position of the stars and planets is constantly changing with time and location. These include simple star maps, planispheres that allow you to set the date, and smart phone apps. Use the starcharts on the right to get started. They show how the prominent features that you can see in the northern skies above Exmoor will look different throughout the year.

And don't forget that clear nights are often chilly - so wrap up warm and bring a hot drink.

Starcharts

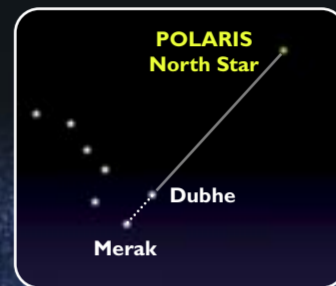
The four star charts show the constellation THE PLOUGH (the Big Dipper) and the POLARIS North Star in different seasons. Each chart includes a silhouette of a stag and a north arrow. The time of night is indicated in the top left corner of each chart: Spring (8pm), Autumn (8pm), Summer (10pm), and Winter (8pm).

How to use the Starcharts

Face the direction which you think is North and look up at the night sky, hold this page in front of you and find the starchart which relates to the present season.

The Plough (or Big Dipper), is the most easily recognised group of stars in the Northern sky, it is always above the horizon. The Plough is always the same shape but it appears to rotate throughout the year as the Earth progresses on its orbit.

No matter which way up it is you can always use The Plough to locate **Polaris** (sometimes also known as the North(ern) Star or Pole Star) which is the brightest star in the constellation Ursa Minor. Continue an imaginary line between the two stars, Merak and Dubhe that form the outer edge of the Plough's tip and travel five times that distance to locate the Pole Star. If you are facing North then the Pole Star should be directly in front of you.



Cassiopeia is easily recognised by its distinctive 'W' shape formed by five bright stars.

The Milky Way

The Milky Way is the name given not only to the Galaxy that we live in but also to the band of light that stretches across the sky, formed by the collective light of billions of distant stars.

Artificial light from streetlights and buildings brightens the night sky, hiding many of the galaxy's fainter stars. This added brightness, often called 'skyglow', reduces the clearness and detail of the Milky Way's star patterns and diminishes the contrast between the Milky Way and the background sky. As a result, the Milky Way is invisible from most locations in the UK, even though it is above our heads every night.

From Exmoor, because our skies are so dark, on a clear night you should be able to see the Milky Way arching overhead.

It's a truly memorable experience and really gives a sense of our place in the Universe.

The very best time to see the Milky Way from Exmoor is during early Autumn when it can be viewed high overhead with its light arching from one horizon to the other.

Startrails over Valley of Rocks by Keith Trueman

Exmoor Milky Way by Keith Trueman

Where to go

Whilst the whole of Exmoor can boast incredibly dark skies, our Dark Sky Reserve designation specifically helps us to protect the core dark sky area and buffer zone, shown on the map by the shaded areas. On the map you will find some locations that we think are particularly good places on Exmoor to enjoy the night sky. Generally the further you are from illuminated built-up areas the darker the sky will be and the more stars you will be able to see. Find a place that:

- ✓ Is away from the glare of direct lights
- ✓ Is open to the public
- ✓ Has good sight lines, without tall buildings or trees
- ✓ Is safe, without hazards such as traffic or steep drops.

An Astronomer's Guide to Exmoor
Visit our stargazing webpage to download a free guide written by popular astronomer Jo Richardson. It contains more information about the darkness of our skies and also her favourite spots for spotting constellations, planets, deep sky observations and astrophotography.



The map shows the Exmoor National Park area, including the Bristol Channel to the west and the Mendon Hills to the east. It highlights the Core Dark Sky Area and Buffer Zone. A key identifies symbols for Dark Sky Discovery Trail, Suggested Stargazing Locations, National Park Centre, Toilets, and Car Parking Facilities. It also shows road types (A, B, and Minor roads), rivers, lakes/reservoirs, and woodland/heath areas. A scale bar indicates 0, 5, and 10 Kilometres. The map is dated © Copyright Exmoor National Park 2023.

This map is only intended as a guide. For more detailed mapping we recommend OS Explorer map 0L9 (Exmoor), available from National Park Centres and many other outlets throughout the National Park. Find walks and more on our interactive mapping section online at exmoorwalks.org/

Telescope Hire

Our National Park Centres stock a range of resources to help you understand and enjoy our dark skies.

We have large but user-friendly Sky-Watcher Dobsonian telescopes for you to hire. There is a short video and info pack showing you how to use it. Book in advance when possible.

We also sell binoculars, telescopes, starcharts, adult and children's books and the guide to the Dark Sky Discovery Trail. Maybe you'd like to buy a warm Exmoor hooded sweatshirt too!

