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# PhotoPlus

THE CANON MAGAZINE

Issue 215 • April 2024



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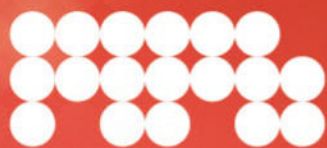


**THE APPRENTICE**

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Future / Peter Travers

**INCREDIBLE INTERIORS**

Learn to take great photos at Salisbury Cathedral, with Canon pro David Clapp and our Apprentice  
**Page 8**

**OUR GUARANTEE**

- We're the only photo magazine in the newsagent that's **100% DEDICATED TO CANON EOS CAMERA USERS** so we're 100% relevant to your needs.
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- We offer **THE VERY BEST CANON TECHNIQUE & PHOTOSHOP VIDEO GUIDES** – see our Canon Skills section.
- We're proud to use **THE WORLD'S TOP CANON PHOTOGRAPHERS** and experts. Meet them on page 6.



**Peter Travers**  
Editor

# Welcome

If you're fairly new to photography, or have never fully understood how your Canon camera settings work together, knowing which aperture, shutter speed and ISO combination to use for the best exposure can be baffling. This issue we go back to basics, explaining in detail how different apertures, shutter speeds and ISO settings will affect your photos. Plus we've provided some essential tables and illustrations you can refer to time and again. With our guide, all the numbers will soon become second nature, and you'll be taking better exposures with your Canon gear in no time. See page 28.

This month I also arranged for our *PhotoPlus* Apprentice to learn how to take great exterior and interior architecture photos, with a special trip to Salisbury Cathedral with Canon pro David Clapp. With permission to use our tripods, we could compose with accuracy, and take long exposures for the best quality images. See the Hot Shots from page 8.

In our Canon Skills section, we have new photo projects for you, all with free video guides! James Paterson teaches you to capture great close-ups of fungi on the forest floor with a Speedlite. Dan Mold reveals how to create tourist-free street scenes, and macro on a budget! Plus there's new Photoshop image-editing tutorials. It all starts from page 43.

Wildlife photographer Esteban Frey talks about working in a cabin crew and flying to the world's richest habitats, to turning pro this year, page 60.

We have new Photo Stories from you, Canon School and EOS SOS, plus learn all about The Photography & Video Show at the NEC on 16-19 March, page 74. Plus we test great RF prime lenses for Canon EOS R mirrorless in Super Test.

Also get your free 164-page *PhotoPlus* Annual ebook worth £17.99, download info on the next page.

*Peter*



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Meet the team...

# PhotoPlus

## THE CANON MAGAZINE

Who we are and our favourite Canon content in this issue...



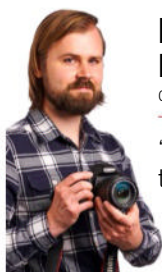
**Peter Travers**  
Editor • 5D Mk IV & R6  
peter.travers@futurenet.com

"This issue you've got an essential guide to exposure. Get to grips with your f/stops, shutter speeds and ISO with our advice, tables and reference guides." **PAGE 28**



**James Paterson**  
Technique writer • R5  
james.paterson@futurenet.com

"In my big photo project this issue I use flashguns off camera to take brighter macro shots of fungi on the forest floor. Also I show you how to capture a wolf fart!" **PAGE 44**



**Dan Mold**  
Deputy editor • R & 7D Mk II  
dan.mold@futurenet.com

"This month I share a cheap hack that transforms an old 50mm prime lens into a macro so that you can shoot awe-inspiring close-ups on a shoestring budget!" **PAGE 50**



**Matthew Richards**  
Technical writer • R5  
photoplus@futurenet.com

"Prime time's not just for TV. I tested some great Canon RF prime lenses for this month's Super Test, from the budget RF 16mm and 50mm to RF 85mm and 600mm." **PAGE 88**

## This issue's contributors...



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Canon pro photographer David shows our *PhotoPlus* Apprentice to take great shots of cathedrals. **PAGE 8**



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Canon photographer Bethan reveals how she captured her amazing shot of a snowy owl on the wing. **PAGE 20**



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Canon photographer Esteban shares his love of adventure and wildlife photography. **PAGE 60**



**Steve Dytham**  
Steve headed out to take top winter wildlife portraits of birds in his garden and local nature reserve. **PAGE 68**



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Wedding photographer Brad heads underwater in his spare time to photograph seals off Lundy. **PAGE 70**



**Newo Ikkin**  
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**Brian Worley**  
EOS expert Brian answers your toughest Canon EOS technical questions, and rates your images. **PAGE 80**

**Our contributors** Ben Andrews, David Clapp, Steve Dytham, Esteban Frey, Marcus Hawkins, Newo Ikkin, Andrew James, Sean McCormack, James Paterson, Matthew Richards, Lauren Scott, Brad Wakefield, Brian Worley



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### Printed by

William Gibbons

### Distributed by

Marketforce, Future, 121-141 Westbourne Terrace, London, W2 6JR  
For enquiries please email [mfcommunications@futurenet.com](mailto:mfcommunications@futurenet.com)

**PhotoPlus (ISSN 1754836) is published monthly (with an extra issue in May) by Future Publishing, Quay House, The Ambury, Bath, BA1 1UA, UK**  
PhotoPlus BAR rate subscription prices: £7.87 for UK, €16.4 for Europe, \$18.6 for USA, £14.3 for Rest of World. Air freight and mailing in the USA by agent named World Container Inc., c/o BBT 150-15 183rd St, Jamaica, NY 11413, USA  
Application to Mail at Periodicals Postage Prices is Pending at Brooklyn NY 11256  
POSTMASTER: Send address changes to PhotoPlus, World Container Inc., c/o BBT 150-15 183rd St, Jamaica, NY 11413, USA  
Subscription records are maintained at Future Publishing, c/o Air Business Subscriptions, Rockwood House, Perrymount Road, Haywards Heath, West Sussex, RH16 3DH, UK

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All applications must be made before midnight on 15 March 2024 and will be verified against specific criteria.

THE APPRENTICE

# STUNNING SALISBURY CATHEDRAL

Inspired Canon pro David Clapp teaches our Apprentice to shoot cathedrals inside and out



## FACTFILE

Salisbury Cathedral

**SALISBURY** is home to one of the world's most photogenic cathedrals, from its stunning early-English Gothic architecture, and tallest spire in Britain (123m), to breathtaking interior stonework, countless archways, and stained-glass windows. Built between 1220-1258, it has the

largest cloister and cathedral close in the UK. Photography is allowed for personal use, but do not bring tripods unless you've made a group booking and have permission. For group bookings email [groups@salcath.co.uk](mailto:groups@salcath.co.uk). More general information at [www.salisburycathedral.org.uk](http://www.salisburycathedral.org.uk)



## CANON PRO

**NAME:**

DAVID CLAPP



**CAMERA:**

CANON EOS R3

**LANDSCAPE**, travel and architectural photographer David, 52, is based in South Devon, but spends much of his time travelling the world with his Canon cameras. He runs seminars for Canon and his own photography workshops, and was the perfect pro to show Pierre how to capture Salisbury's historic architecture. To see more of David's work, and for info on upcoming workshops, check out [www.davidclapp.co.uk](http://www.davidclapp.co.uk)

## APPRENTICE

**NAME:**

PIERRE  
BURGER



**CAMERA:**

CANON EOS 1300D

**PIERRE**, 37, is originally from Namibia, and moved to Salisbury in 2016, where he works as a receptionist at a care centre. "My interest in photography came from reading a copy of *PhotoPlus*. I then purchased my first Canon, an EOS 1300D DSLR, from Castle Cameras in Salisbury. Weather pending, I like to spend time outdoors, and I usually take my camera as there is always something interesting to capture in beautiful Wiltshire."



# THE APPRENTICE

## TECHNIQUE ASSESSMENT

Canon pro David helped amateur Pierre how to set up his 1300D for better results



### MANUAL MODE

**PIERRE** liked to use Manual mode and set his apertures, but needed some help understanding how to set the shutter speed for a good exposure, as he'd used Auto ISO, which meant his shots were often noisy as his 1300D would need to set a high ISO as the shutter speeds he'd set were very slow. "I set ISO100, aperture to f/8, and then increased the shutter speed until the exposure level indicator was central on the exposure index – indoors he needed a shutter speed of 8 secs," says David.



### WHITE BALANCE

"**I GOT** Pierre to set his White Balance according to the lighting conditions. The Cloudy preset was ideal as it was very overcast when we were shooting outside. However, once inside the cathedral, I suggested he use the White Fluorescent Light preset, which is around 4000K and captures cooler images, to deal with the warm artificial lighting," says David.

## HOT SHOT #1



Lens	Canon EF-S 18-55mm f/3.5-5.6 IS II
Exposure	1/80 secs, f/8, ISO100

## PIERRE'S COMMENT



“ We started off outside Salisbury Cathedral to photograph this front view. It was grey and overcast, and David

explained to really take control of your exposures, you need to shoot in Manual mode. This enabled me to set the aperture and shutter speed to dictate what I felt should be bright and dark in the shot, with the brighter sky contrasting with the darker building. I shot at 18mm on my kit lens with my crop-sensor 1300D – which, I learned, is equivalent to 29mm on a full-frame camera like David's R3. I moved further back to get the whole spire in and evenly composed for space both sides. ”





**EXPERT INSIGHT**

**HOW TO USE A TILT-SHIFT LENS**

**THIS** specialist lens captures straight architectural shots to avoid that leaning backwards look by applying just a small amount of shift to make the subject central



**TOP GEAR #1**  
Canon tilt-shift lens

**“MY WELL-USED** Canon TS-E 24mm f/3.5L II tilt-shift lens is an amazing optic,” reveals David. “With a large field of view, your camera can be levelled and square to buildings, and then the composition ‘shifted’ around in the viewfinder. This keeps those important verticals straight, just as the eye sees them, which is an essential look for professional architecture photography.”



**STEP 1** With a wide-angle lens you can only include the entire cathedral and spire by pointing the camera upwards, but this converges the verticals – making the building look like it’s leaning back!



**STEP 2** The camera is now levelled and straight on to the face of the cathedral, but the tall spire doesn’t fit in the frame – we need to ‘shift’ the TS-E lens upwards to reposition the cathedral.



**STEP 3** Applying just a small amount (7mm on lens) of ‘shift’ repositions the cathedral to look central in the frame and square. This small adjustment is all it takes for a straightened shot with a TS-E lens.



**TOP GEAR #2**  
Canon Extender

**“THIS** little EF Extender 1.4x III is my secret weapon! I use this teleconverter to multiply the focal length of my favourite lenses to make them even more versatile. My TS-E 24mm f/3.5L II becomes a 35mm and my EF 100-400mm f/4.5-5.6L IS II USM telephoto zoom becomes a 560mm at the long end!” says David. “I simply use the EF-EOS R mount adapter so I can use the Extender and EF/TS-E lenses on my EOS R3 camera.”



# THE APPRENTICE

PRO TIP

## RAW IMAGES

**FOR** architecture photography, shoot in RAW image quality, as you need the highest quality images so you can reveal the most amount of detail in every tone possible by boosting shadows, reducing highlights and upping contrast when editing your RAW images.



## TOP GEAR #3

### Telephoto zoom lens

**DAVID LOVES** to use his Canon EF 100-400mm f/4.5-5.6L IS II USM telephoto zoom lens for closer compositions of parts of buildings or to compress perspective to bring elements closer together – like the columns in the cloisters. “It’s super sharp and reliable, and in daylight outside I shoot at 400mm handheld at f/11 and get shake-free shots with Image Stabilization,” said David. “Inside the cathedral and cloisters I used a tripod.”



PRO TIP

## TELEPHOTO CREATIVITY

“**I OFTEN** use my Canon EF 100-400mm f/4.5-5.6L to pick out interesting bits. I love the repeating patterns of these old columns. At 100mm and f/16, I’ve ensured that the columns from front to rear are sharp in this shot. I also used a Mono Picture Style to go for a black and white look,” says David.



Lens	Canon EF-S 18-55mm f/3.5-5.6 IS II
Exposure	1/80 secs, f/8, ISO1600

## EXPERT INSIGHT

### SHARP AND CLEAR IMAGES

**DAVID WAS** very keen to emphasize to Pierre the importance of capturing the sharpest possible photos, and with minimal noise, which can be very apparent when shooting at higher ISOs on smaller sensor cameras like his 1300D. “I made sure Pierre switched

from Auto ISO and set his ISO to 100 for cleaner images, as we were able to use tripods inside the cathedral, so it didn’t matter if our shutter speeds were really slow.

I also got him to use the 2-sec self-timer to get sharper shots on his wobbly and skinny tripod! He was often pressing the shutter button and still holding his camera, which meant blurry shots when shooting at longer exposure of 4 secs and slower. Press the button then get your hands off!” chuckles David.



HOT  
SHOT  
#2

## PIERRE'S COMMENT



“ In the cloisters we captured some nice symmetry. I started off shooting vertically and from a central position, but David encouraged me to shoot horizontally, and compose off to one side – this showed off the more interesting columns – for a balanced shot. This is where my 1300D's 1.6x crop came in handy, as shooting at 32mm made my shots zoomed in (equivalent to around 56mm) to compress the scene and bring the columns together. I took shots with and without people in, but liked how this couple created a sense of scale. ”

## TOP GEAR #4

## Pro mirrorless camera

**DAVID HAS** always used Canon cameras and last summer he upgraded to a top-of-the-tree Canon EOS R3 mirrorless camera. “With travel and architecture imagery seeming to be so well covered in today's media world, I am diversifying into video. The R3 is a proper professional hybrid camera that captures amazing photos and high-quality 6K video. I can shoot at 30fps, use the Eye Control AF and subject tracking,



and work at higher ISOs without worrying about noise, and record slow-mo videos in ultra-high detail, but it's things like the Vari-Angle screen I also love – perfect for shots of Salisbury Cathedral's ceiling!” he says.



# THE APPRENTICE

## TOP GEAR #5

Hotshoe spirit level

### PIERRE'S

entry-level 1300D DSLR doesn't have a digital level on screen, nor did his budget tripod have a spirit level on the legs or head, so he was finding it difficult to get his camera level for straighter photos. "I have these great little spirit levels that slot into your camera's hotshoe. So simple, but so effective. It instantly helped Pierre with his photos. This type are available on Amazon and eBay for less than a fiver!" smiles David.



## DAVID'S COMMENT



Salisbury Cathedral has a modern font in the centre, made by William Pye and installed in 2008. It has a constant flow of water which produces perfect reflections. After taking wider shots to show off the whole font, I demonstrated to Pierre how he needed to get closer and position his lens almost level with the water to make the most of the reflective surface. I use the 5x5 grid in Live View to line up on the font. Using my 16-35mm at 18mm, I needed a 10-second shutter speed at f/11 and ISO100 for a bright exposure.



## PRO TIP

## SWITCH OFF IS!

PIERRE WAS struggling with his focusing on his 1300D. In Live View, it kept hunting around trying to focus on the wrong parts of the scene. David advised switching off Image Stabilization on the lens and switch to manual focus (MF) on the lens to lock the focus.



## TOP GEAR #6

Wide zoom lens

"MY GO-TO wide-angle lens is still the Canon EF 16-35mm f/4L IS USM, even though I've moved to mirrorless. I prefer it over the f/2.8 as it's lighter, has image stabilization, and takes more popular (and cheaper) 77mm filters, rather than 82mm. The f/4L lens is incredibly sharp, even wide open, but for the best combination of depth of field and image quality, use your wide-angle lens at a mid-range aperture of f/8."



# HEAVENS ABOVE... DAVID'S HIGH CEILINGS

Canon pro photographer shares some of his favourite images of breathtaking architecture



### TATE BRITAIN

THE CEILING from the base of the stairs is an incredible abstract. Shot with an EF 16-35mm f/4L IS, the placement of the dome and textured wall is critical to the flow of the shapes.



### CHAPTER HOUSE, YORK MINSTER

PLEASE ask before you start taking to the floor! I laid down with my head positioned in the centre of the room, aligning the windows with the corners of the frame in the Gothic masterpiece.



### GEIA DEL CHESU, ROME

WITH CLEAR access to the dome, the extravagant ceilings are a delight to capture. Don't be put off by the uneven lighting conditions as the symmetry keeps you anchored.

SHOOT WITH A PRO

# HOT SHOT #3



THROUGH THE RIVERST

HAVE REDEEMED YOU.

Lens	Canon EF 16-35mm f/4L IS USM
Exposure	10 secs, f/11, ISO100

# THE APPRENTICE



## DAVID'S COMMENT



“ I was keen to take a wide shot that captured the 13th century choir stalls, high altar, the ceiling and windows beyond, so first used my tilt-shift lens for an accurate and straight shot. However,

I switched to my EF 16-35mm f/4L lens at 16mm, pointing it up to capture more of the archways and ornate ceiling. When architecture looks down on you from above in the frame, it gives the scene a more powerful, imposing appearance. So it's worth embracing the convergence sometimes! Low light needed a 13-sec exposure at f/11, ISO100. ”



## HOT SHOT #4

Lens	Canon EF 16-35mm f/4L IS USM
Exposure	13 secs, f/11, ISO100

## PRO TIP

## LIVE VIEW TO EXPOSE AND COMPOSE



“ TRY MOVING your camera around in hand with Live View on screen to find the best composition,” suggests David.

“When in position, compose with more precision using the tripod. Zoom 10x in to get the maximum sharpness, using AF to focus on an area with edges and contrast or adjusting focus manually. Use the Live View histogram to check highlights. ”

## DAVID'S COMMENT



“ I like nothing more than capturing abstract architecture images, so don't forget to look up when you're inside cathedrals as ceilings are often incredibly impressive. My EOS R3's flip-out Vari-Angle

screen makes light work of these shots, as I can point my tripod head and camera directly up, then comfortably use the screen with grid display in Live View to line up with ceiling design for a symmetrical shot. I used my 15mm fisheye to include as much as possible of the huge patterns and arches. ”



## HOT SHOT #5



## TOP GEAR #7

### Compact fisheye lens

"I STILL swear by this great little, budget Sigma 15mm f/2.8 EX DG Diagonal Fisheye lens that's still sharp from centre to edges. On my full-frame R3 (with the adapter as this is an EF lens) it captures an amazing 180-angle of view. You can pick up a used lens for around £250 online. An amazing price in today's worth for such superb optical quality at 15mm," says David. "Pierre tried it out on his 1300D, even with the 1.6x crop factor it created wide 24mm shots."



Lens	Sigma 15mm f/2.8 EX DG Fisheye
Exposure	11 secs, f/8, ISO100

## DAVID'S 10 STEPS TO GREAT CATHEDRAL SHOTS

- 1 Lap the building**  
 Take a complete tour and spot everything from classic wide shots of the nave and chapels, to long lens details. Make a mental list of each focal length and position and get to work.
- 2 Use a tripod if possible**  
 Always ask for permission to use a tripod inside cathedrals/churches. A tripod stabilizes your camera to produce sharp, clear images at lower ISO, especially in low light conditions. You will be surprised how many places will agree.
- 3 Embrace symmetry**  
 Symmetry adds a powerful visual impact to your images. Cathedrals are often incredibly precise. Align your camera with floor tiles and features to capture the architectural balance of the interior.
- 4 Wide-angle for grandeur**  
 Utilize wide-angle lenses to capture the vastness and detail of the interior space, including high ceilings and arches. This will require some precision work. Use your flip-out screen if your Canon has one to save your neck!
- 5 Longer focal lengths for details**  
 Use telephoto lenses to isolate and capture intricate details like stained glass, carvings, and artwork. There is an abundance of these in cathedrals. Use lower apertures for smooth background isolation.
- 6 Consider a fisheye**  
 For a unique perspective, a fisheye lens can emphasise the sheer scale and curvature of architectural interiors. They are superb for ceiling details and adding a playfulness to your portfolio.
- 7 Manual mode for control**  
 Adjust shutter speed, aperture and ISO manually for optimal exposure, especially in challenging lighting. This can help control when the lighting changes, or will put light into the shadows.
- 8 Don't be afraid of hand-held high ISO**  
 If all this tripod precision is cramping your style, or you're not allowed to use one, set your camera to ISO1600 and shoot wide-angle images at f/5.6. Brace yourself against seats, pillars or walls for sharp shots.
- 9 Capture reflections**  
 Look for reflective surfaces like fonts or polished floors to add depth and a sense of tranquility to your images. Place the camera on the floor or on a low tripod.
- 10 Grey days are good!**  
 My personal favourite for interiors is light, overcast skies. The windows will not burn out so easily, but the cathedral will seem light and airy. Use HDR methods if sunshine is your only option, bracketing three exposures.

# SHOT OF THE DAY!

## BE OUR NEXT APPRENTICE

Do you need help to take your Canon photography to the next level? Let us know what genre you'd like help with and we could pair you up with a top pro for the day! Send an email to [photoplus@futurenet.com](mailto:photoplus@futurenet.com) with 'PhotoPlus Apprentice' in the subject line, and include your Canon kit, telephone number and address.

## PIERRE'S COMMENT



“ Thank you *PhotoPlus* for giving me the opportunity to spend time with you and David photographing Salisbury cathedral. I really enjoyed it, and this *PhotoPlus* Apprentice workshop allowed me to step out of my comfort zone, and apply the things I learned straight into practice! For this shot at night, my lightweight tripod and head was tricky to adjust, but with David's help and the hotshoe spirit level addition, I was able to line up for a level, and square-on shot. It was fun to shoot with 20-30 second exposures! I plan to take a photography course at Salisbury College to keep learning. ”

Lens	Canon TS-E 24mm f/3.5L II
Exposure	25 secs, f/8, ISO200

## DAVID'S VERDICT



“ The light was drab and grey during the day, and while this is ideal for softer light without harsh sunlight and shadows for the interiors, it meant exterior shots of the iconic Salisbury cathedral looked a bit flat. So we waited until the blue hour, 30 mins after 'sunset', when the cathedral was beautifully lit up for a more interesting shot! I used my TS-E tilt-shift lens to ensure the entire building, including the very tall spire, was straight and level. With a mid-range aperture of f/8, I set my ISO to 200 to obtain a 25 secs shutter speed. *PhotoPlus* Apprentice Pierre was like a sponge on our shoot, soaking up all the new information, and was quick to use his new skills. Best of luck for the future! ”



# INSPIRATIONS

STUNNING IMAGERY FROM THE WORLD OF CANON PHOTOGRAPHY





**01 WINTER FIELDFARE BY GIANPIERO FERRARI WINNER 1ST**



"After a snowfall during the night, several fieldfares came into the garden to take advantage of the apple that I left out. This particular bird was aggressive and took over the entire garden. I took some pictures from the window of my house, but knew I could get a better composition outside by shooting at ground level. So I built a pile of snow to use as a background and then lay in the ground under a camouflage blanket, waiting for the bird to return to eat the apples."

**Lens** Canon EF 500mm f/4L IS USM

**Exposure** 1/200 sec, f/10, ISO500



02

**02 OXPECKER BY KEVIN ROONEY 3RD PLACE**



"I took this picture in Mara North Conservancy in Kenya. We came across a large herd of buffalo and soon found our Land Cruiser surrounded by them. By being so close, I was able to zoom in on the numerous oxpeckers cleaning ticks and flies from the buffalo. They especially concentrated on their eyes, ears and noses which is how I managed to get this shot before the buffalo shook the bird off."

**Lens** Canon EF 100-400mm f/4.5-5.6L IS II USM

**Exposure** 1/1000 sec, f/5.6, ISO200

**03 PYGMY OWL IN A SNOW SHOWER BY CHRISTY GRINTON VERY HIGHLY COMMENDED**



"I am a retired wildlife biologist living on Vancouver Island. It doesn't snow a lot on here, so when it does it is always good to get out and get some wildlife shots. On this day, I headed into the hills in search of the very tiny pygmy owl. We could hear him calling on the top of some nearby trees so I climbed higher. It was lightly snowing when we spotted him sitting on this fallen branch across the trail. I climbed high up the hill to make sure nothing was directly behind the owl, for a cleaner background and better bokeh."

**Lens** Canon RF 100-500mm F4.5-7.1L IS USM

**Exposure** 1/400 sec, f/7.1, ISO1250



03

**04 THE EYES HAVE IT BY VICTOR SOARES VERY HIGHLY COMMENDED**



"Two short-eared owls were spotted in a local park and I decided to try my luck and get some photos. Owls are notoriously difficult to photograph as they are easily flushed or spooked and hence have to be photographed at a distance. However, these two birds were quite comfortable with the people that had gathered to see them and graced everyone with a few close flypasts. Then, to my amazement – and delight – this bird landed within a few feet of me in a lovely bush, turned its head and searched out where the other bird had flown to."

**Lens** Canon EF 500mm f/4L IS USM

**Exposure** 1/1600 sec, f/4, ISO640



**SINWP**  
Society of International  
Nature & Wildlife Photographers

The Society of International Nature & Wildlife Photographers, or simply known as SINWP for short, has over 30 years of experience and a highly skilled network of internationally renowned lecturers and photographers. Watch out for the next SINWP BPOTY 2024 contest which is due to kick off in March when the prize fund will also be announced. For your chance to win the coveted SINWP Bird Photographer of the Year 2024 Trophy be sure to check out their website for more information.

[www.sinwp.com/bird](http://www.sinwp.com/bird)



# INSPIRATIONS



05



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Nature & Wildlife Photographers

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[www.sinwp.com/bird](http://www.sinwp.com/bird)



06





07

**05 SUNSET CRESTY BY ANDY WALL HIGHLY COMMENDED**



"I took this image in the Cairngorms National Park, on a late afternoon in February. I was there for a week being guided by Andy Howard, photographing the mountain hares. Heavy snow, strong wind and freezing temperatures had kept us off the hills most of the week, I was gutted. I was however given the opportunity to capture the lovely crested tits and just as the light disappeared for the day I was gifted with just a few moments of sun and I took this lovely silhouette."

**Lens** Canon EF 500mm f/4L IS II USM

**Exposure** 1/320 sec, f/7.1, ISO800

**06 SNOWY OWL BY BETHAN DANIEL COMMENDED**



"I've been trying to get a photograph of an owl with wings almost touching at the tips when flying, but the light was never quite right. I had to wait a while for the correct sun position as it rains a lot in Wales, but when it did come I knew that I had a good chance of getting the shot that I was after. Then it was just waiting for the owl to take off and take as many shots as I could. Luck is a factor too, and on this day the owl flew in the direction that I needed."

**Lens** Canon EF 100-400mm f/4.5-5.6L IS II USM

**Exposure** 1/2500 sec, f/7.1, ISO 1250

**07 RED-BILLED OXPECKER ON ZEBRA BY TRACEY GRAVES HIGHLY COMMENDED**



"I am a hospital doctor from Cambridgeshire and wildlife photography is my hobby. We spend a month each year in Africa in pursuit of this. On this recent trip to Kruger National Park I spotted this lovely oxpecker. They are usually found on less photogenic hosts, so I was pleased that when we found this one. It was a chance to photograph it against the striking black and white stripes of the zebra behind."

**Lens** Canon EF 100-400mm f/4.5-5.6L IS II USM

**Exposure** 1/1000 sec, f/6.3, ISO640

# INSPIRATIONS



08

## 08 MURMURATION BY JAMES ARNOLD COMMENDED

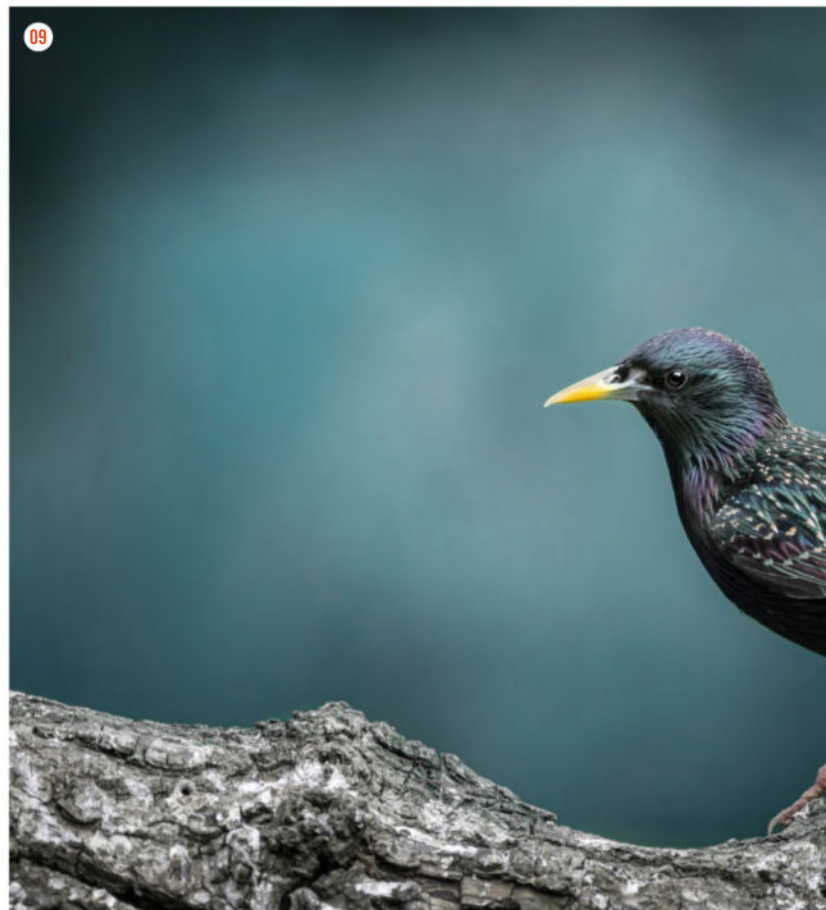


"I have always loved watching starling murmurations and during one winter I heard of some big murmurations on some farmland near to my mother's care home. I visited whenever I could and ended up taking thousands of images, a number featured on TV's *Springwatch* and in national newspapers. I was lucky to be able to catch some very distinctive shapes and waited for days when the sunsets created lovely colours in the sky. There is an unbelievable energy when you are under so many birds but if you are lucky enough to be under a murmuration, make sure you wear a hat!"

**Lens** Canon EF 24-70mm f/2.8L USM

**Exposure** 1/125 sec, f/4.5, ISO1600

09





**09 STARLING BY ANNEMARIE KING  
COMMENDED**



"I caught this image with my Canon EOS R5 and Canon RF 100-500mm F4.5-7.1L IS USM lens. I waited for the starling to land with its body in a pleasing position and chose a simple, clean background. The image was taken at the amazing Leeds Wildlife Photography Hides, a great spot for watching and photographing lots of different bird species. I had no real goal except to catch some nice bird pictures in my usual style with shallow depth of field and clean background without distracting elements."

**Lens** Canon RF 100-500mm F4.5-7.1L IS USM

**Exposure** 1/1000 sec, f/6.7, ISO800

**10 SWAN BY PAUL KIRKBY COMMENDED**



"Although swans are relatively common it's often difficult to capture their gracefulness. On this particular day the forecast was calm with some morning mist, so I headed down to Loch Leven. On arrival, the mist was thicker than I expected and I was struggling with the light. Just as I was about to give up, the sun shone through, the mist started to lift and so, balancing the lens on the end of my boot, I managed to capture this portrait."

**Lens** Sigma 150-600mm f/5-6.3 DG OS HSM | C

**Exposure** 1/500 sec, f/7.1, ISO400



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[www.sinwp.com/bird](http://www.sinwp.com/bird)

## The exposure triangle

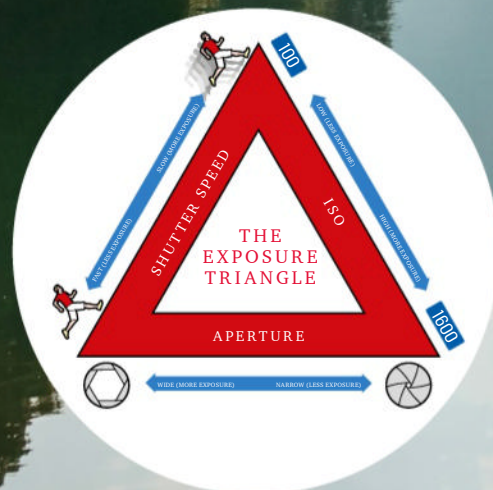
Aperture, shutter speed and ISO work together in harmony to produce the right exposure for you.

**IMAGINE** that aperture, shutter speed and ISO are three sides of a triangle. If we alter one element, then we have to compensate by adjusting at least one of the other two. For example, a wide aperture and a short shutter speed might produce the same exposure as a narrow aperture with a longer shutter speed, but the resulting images are different.

Widening the aperture allows more light through the lens, so we compensate either with a shorter shutter speed to keep the capture of light brief, or a low ISO to make the sensor less sensitive to the light that hits it.

The longer the shutter is open, the more light shines through. So, to prevent overexposure, we compensate either by narrowing the aperture to reduce the light, or by lowering the ISO to make the

sensor less sensitive to light. A narrow aperture restricts the input of light and produces images with greater depth of field, often desirable for landscapes, but this results in slower shutter speeds. For action shots, you want a wide aperture and faster shutter speed to freeze motion.



CANON EOS CAMERA SKILLS

# EXPOSURES MADE EASY

*Learn all you need to know to take better exposures*  
*Apertures • Shutter speeds • ISO • Depth of field*





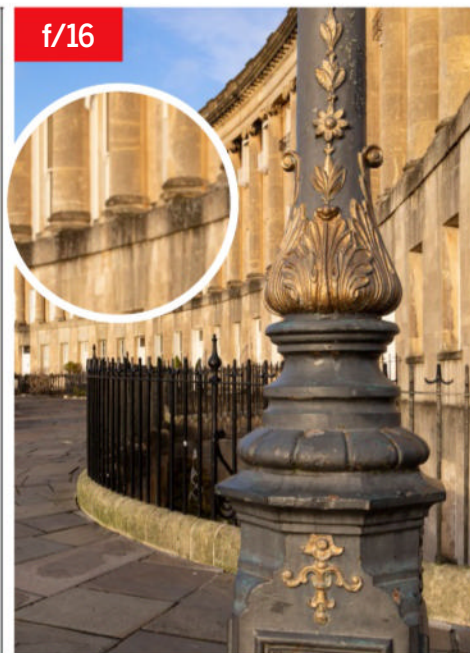
## APERTURES

Use Av mode to control how wide-to-narrow apertures in your lenses affect exposures



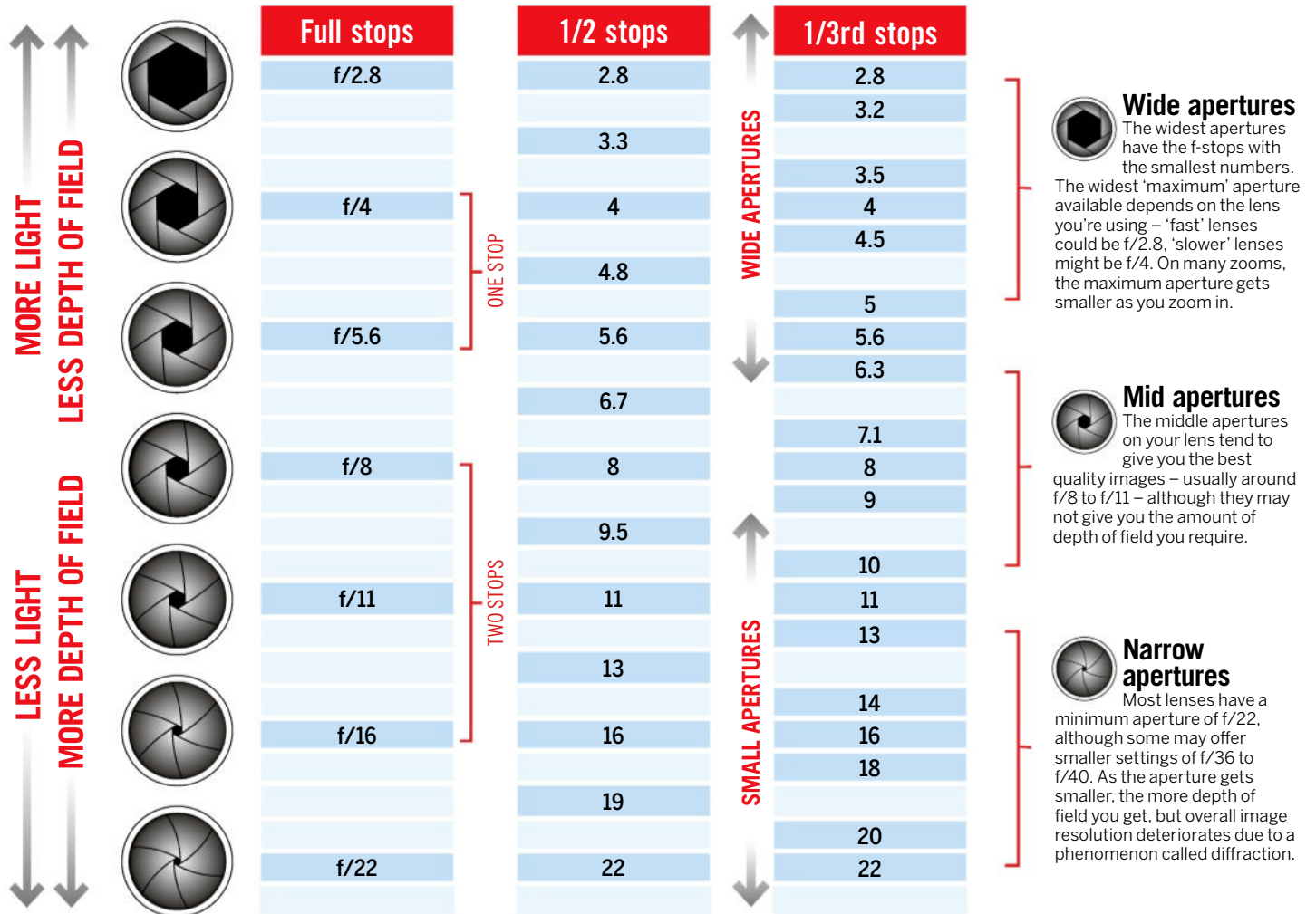
### Different apertures affect sharpness

See how a narrow aperture compared to wide captures sharper scenes



# Making sense of aperture f-stops

Your at-a-glance guide to aperture scales and what settings mean



**A**ltering the aperture is one of your most potent weapons, but this simple control can lead to confusion. The aperture used can create varied, seemingly contradictory, effects. Then there is the number scale in the wrong order...

To simplify things, just think of the aperture as an opening that can be varied in size to control the amount of light reaching the camera sensor. Used in conjunction with shutter speed (the length of time the sensor is exposed to light), the aperture enables you to match the exposure to the

brightness of the scene. The wider the aperture, the more light that is let in – helping you to compensate for darker conditions, or enabling you to use a faster shutter speed.

The aperture isn't in your camera; it's inside the lens. As Canon EOS DSLR and EOS R mirrorless lenses are removeable, the range of aperture settings varies on your lens. Expensive lenses tend to have significantly wider maximum apertures than budget zooms – eg f/1.2 or f/2.8 compared to f/4 or f/5.6.

What might frustrate those new to photography is the

f-stop scale used for the size of each aperture. However, aperture numbers are just fractions. So, f/4 is not 4 but a quarter (1/4). This is why f/16 is a smaller aperture than f/4. So, f/4 means the aperture diameter is the focal length of the lens (f) divided by 4. And a setting of f/16 means the diameter of the aperture is a 16th of the focal length.

Altering the f-number does not just alter the amount of light reaching the sensor. As we explain on the left (and further on page 36), the aperture is one of the main factors affecting the depth of

field, and how much of the scene actually appears sharp.

Finally, a lens also performs better at some apertures than others, and it doesn't give its best resolution when set at extreme apertures, such as f/4 and f/22. Resolution and quality improve gradually as the aperture is made smaller, but as it gets even smaller, image resolution and contrast deteriorate again – due to an optical phenomenon known as diffraction. This is why optimal apertures for the best image quality across the frame are usually mid-range, around f/8 to f/11 on most lenses.

## SHUTTER SPEEDS

Discover how your shutter speed affects your exposures, and how faster or slower speeds capture movement



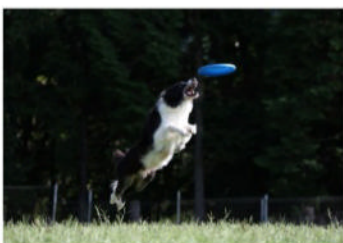
**T**he shutter speed is one of three fundamentals of your exposure for regulating the brightness of your pictures. The shutter speed setting works in tandem with the aperture (and ISO) to help you take a perfect exposure, in a variety of lighting conditions.

Shutter speeds are easier to understand than apertures as the scale is more logical. Shutter speed – or length of time the shutter is open – is simply measured in fractions of a second. So 1/500 sec shutter speed lets through half as much light as 1/250 sec.

The shutter speed range is also more extensive than the aperture range, as you control it with your EOS camera. The top speed on EOS cameras is usually around 1/4000 sec, while the longest automatically set shutter speed is 30 secs.

### Allowing for movement

You can set your shutter speed to control the amount of motion blur (or lack of it) in a picture. This effect is only noticeable if either the camera or the subject is moving. Even with stationary subjects, shutter speed is crucial if the camera is handheld – the slightest movement of your body results in camera shake



**When photographing fast action subjects, such as animals or sports, you need a fast shutter speed**

## Different shutter speeds capturing motion

The faster your shutter speed, the more any movement is frozen in your scenes



and a blurred image. If the shutter speed is fast enough, this movement becomes imperceptible. Just how fast the shutter needs to be to avoid camera shake depends on a number of factors (including whether you use an image-stabilized lens, and how windy it is), but the most important factor is the focal length of the lens. The longer the focal length, the faster the shutter speed you need. A good rule is your minimum

shutter speed should be 'one over' the focal length. So, with a 50mm lens setting, use 1/50 sec or faster, and 1/200 sec or faster with a 200mm lens.

Use a solid tripod, though, and the camera shake problem is eliminated, giving you complete control of shutter speed – and therefore also a greater choice of apertures.

Moving subjects also affect shutter speed choice. If you want the subject to appear sharp in the shot, a fast enough

speed (such as 1/1000 sec) must be used. However, it is not essential for everything to be completely still – many moving subjects are more artistically captured with a slower shutter speed, such as the rushing water in the above shots at around 1/2 sec. The secret is to use a speed that is long enough to make the blur look deliberate. Using a tripod is essential, so static parts of the scene are sharp, and only moving parts are blurred.



# Making sense of the speed scale

Canon EOS cameras give you the choice of two different shutter speed scales – one with 1/2-stop steps, the other, more popular, choice with 1/3-stop steps. Each step along the full-stop scale represents a doubling (or halving) of the amount of light reaching the sensor.

Full stops	1/2 stops	1/3 stops	
1/4000	1/4000	1/4000	
	1/3000	1/3200	
		1/2500	
1/2000	1/2000	1/2000	One stop
	1/1500	1/1600	
		1/1250	
1/1000	1/1000	1/1000	
	1/750	1/800	
		1/640	
1/500	1/500	1/500	
	1/350	1/400	
		1/320	
1/250	1/250	1/250	Third of a stop
	1/180	1/200	
		1/160	
1/125	1/125	1/125	
	1/90	1/100	
		1/80	
1/60	1/60	1/60	Two stops = shutter open four times as long
	1/45	1/50	
		1/40	
1/30	1/30	1/30	
	1/20	1/25	
		1/20	
1/15	1/15	1/15	
	1/10	1/13	
		1/10	
1/8	1/8	1/8	
	1/6	1/6	
		1/5	
1/4	1/4	1/4	
	0.3	0.3	
		0.4	
0.5	0.5	0.5	
	0.7	0.6	
		0.8	
1	1	1	
	1.5	1.3	
		1.6	
2	2	2	
	3	2.5	
		3.2	
4	4	4	
	6	5	
		6	
8	8	8	
	10	10	
		13	
15	15	15	
	20	20	
		25	
30	30	30	



### 01 USE Tv MODE

The easiest way to control your shutter speeds is to set the mode dial to Tv – aka Time Value or Shutter Priority mode.



### 02 MID-RANGE SPEEDS

With ISO at 400, try setting a mid-range shutter speed of around 1/125 sec for general use. Note the aperture is f/11.



### 03 SLOWER SPEEDS

Now dial in a slower speed of around 1/25 sec. Note how the aperture narrows down to f/22 to ensure a good exposure.



### 04 FASTER SPEEDS

Now dial in a faster speed of around 1/2000 sec. Note how the aperture widens to f/2.8 on our lens for a good exposure.

## ISO SENSITIVITY

The ISO setting on your camera is the third part of the exposure triangle. Here's how it works...

**D**igital cameras, of course, do not use film – but the same ISO scale that was used for film is used to control your EOS camera's sensitivity to light. As the ISO is increased, your sensor becomes more sensitive to light – and this helps you get that fast-enough shutter speed you may need in low light when hand-holding.

This makes ISO a powerful tool, helping you to get sharp shots in a variety of lighting conditions. You'll find ISO is a simple set of numbers. The



Older EOS camera sensors struggle at higher ISOs in low light. This was taken on a 77D at ISO1600. Take test shots on your camera

base sensitivity of Canon EOS cameras is ISO100. But this can be increased by pressing the ISO button and then rotating the correct dial (on some cameras, ISO is changed through the red menu). The scale is simple, in that doubling the ISO number doubles the sensitivity of the sensor – for instance, increasing the ISO from 100 to 200 means you can use a shutter speed that's twice as fast, such as 1/250 sec increasing to 1/500 sec.

Each doubling of the ISO increases the sensitivity by a full exposure stop, with the full-stop ISO scale progressing 100, 200, 400, 800, 1600 and so on. The top ISO setting varies depending on the age and cost of your Canon EOS camera, from ISO3200 to ISO102,400 (see right).

The top ISO settings on many models are hidden, and must be expanded in the ISO menu. There's a good reason for this – each time you increase the ISO, you also get



Auto ISO is a vastly underestimated setting to use. It enables you to shoot in Av or Tv mode – set your desired aperture or shutter speed, then leave your camera to auto-set an ISO setting for a (hopefully) shake-free exposure

a small decrease in image quality, as boosting the picture signal also amplifies impurities known as noise. This noise shows up as grain and colour mottling in the image – and this gets progressively more noticeable the higher the ISO is set. This is why Canon suggests that the highest ISO speeds produce so much image noise that they should be used with caution!

### When to increase ISO

However, pumping up the ISO can sometimes improve your photos, because this lets you use a faster shutter speed for

**“Each time you increase the ISO, you get a small decrease in image quality”**

your shots – eliminating camera shake as well as capturing sharp shots of moving subjects. Remember, a grainy picture is better than a blurry unusable one.

Also, a higher ISO can enable you to use a narrower aperture when you're shooting handheld, increasing depth of field for scenic shots with more depth of sharpness.

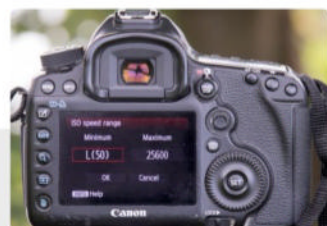
Although higher ISO settings are invaluable in low light, they are not essential for all low-light situations. In fact, if you can keep your camera steady, they are often best avoided. If you are using a solid tripod, the slowest ISO setting (ISO100) is usually the best option, because you can then use a longer shutter speed to make up for the lack of light. Similarly, if you are using flash, high-ISO settings are not needed (although increasing the ISO increases the effective range of your flash).

## ISO SETTING OPTIONS



### 01 TRY AUTO ISO

Most Canon EOS DSLRs and EOS R cameras offer an Auto ISO setting that sets the ISO sensitivity for you. This is ideal for handheld shooting or when using Av/Tv modes.



### 02 MINIMUM (L) ISO

Most EOS cameras let you set minimum and maximum ISO speeds. This is good for avoiding unwanted noisy pictures. A pro camera's minimum could be ISO50.



### 03 HIGH (H) ISO

Your EOS camera's highest ISO settings (labelled H) are enabled in your ISO Speed Setting in the red menu, or Custom Functions menus on older EOS cameras.

# Making sense of the ISO scale

As ISO doubles, your camera becomes twice as sensitive to light

Full stops	1/3 stops
100	100
	125
	160
200	200
	250
	320
400	400
	500
	640
800	800
	1000
	1250
1600	1600
	2000
	2500
3200	3200
	4000
	5000
6400	6400
	8000
	10,000
12,800	12,800
	16,000
	20,000
(H) 25,600	(H) 25,600
	32,000
	n/a
(H) 51,200	(H) 51,200
	n/a
	n/a
(H) 102,400	(H) 102,400
	n/a
	n/a
(H) 204,800	(H) 204,800



**01 LOW ISO SETTINGS**  
Always use ISO100 for the best quality images, unless there's a good reason, such as needing a faster shutter speed for action.



**02 BOOSTING THE ISO**  
Back in the day, we'd only shoot up to ISO1600 for fear of noise. Modern EOS cameras can offer clean images even at ISO6400.



**03 MAXING OUT ISO**  
However, shooting at your EOS camera's maximum native ISO is when you notice some noise, especially in low light.

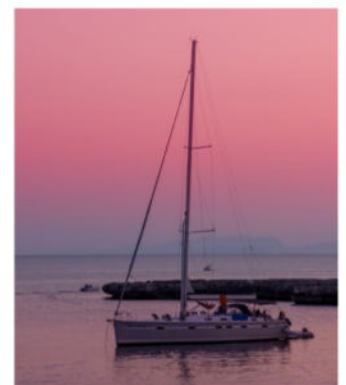
## High ISO for narrow apertures handheld

Increasing your ISO setting isn't just for faster shutter speeds

**YOUR** Canon camera has a native (aka safe sensitivity settings to use before image noise becomes very apparent) ISO usually around 100-12,800. But you have the option to use expanded super-high ISO settings for those times when you are prepared to tolerate noise just to get a shot, such as shooting a music gig in a dark indoor arena. Typical H (for High) ISO settings are ISO51,200, 102,400 and sometimes 204,800 on top-end cameras.

The highest ISO settings depend on your Canon EOS camera; the newer the camera, the higher the maximum ISO. The Canon EOS R5, for instance, includes ISO51,200 within its native ISO settings for stills, whereas the EOS R8 includes ISO25,600 as its maximum native ISO setting – yet both top out at ISO102,400.

The EOS 5D Mark IV has a quirky ISO32,000 as its max, while the older 7D Mark IV maxes out at an also unique ISO16,000.



An ISO of 800 enabled us to shoot handheld with an aperture of f/8

## DEPTH OF FIELD

Control how much or how little appears sharp in shots

**T**he ability to control which parts of your pictures are sharp or blurred is one of the main advantages of owning an Canon EOS camera. This allows you to create emphasis where you want it – and to hide distracting elements.

Due to an optical property known as depth of field (aka DoF), a range of distances actually appear sharp. This zone of sharpness can vary depending on three key factors: your aperture, focal length and focusing distance.

Focus closely on a flower with a 100mm macro lens at  $f/2.8$ , and depth of field may only stretch for a couple of millimetres behind and in front of your focus point. Switch to shooting a sweeping landscape with a wide focal length of 18mm at  $f/16$ , and everything from your feet to the scenery in the far distance on the horizon

appears pin sharp. So, to control DoF, first choose your aperture on your lens. The narrower the aperture (the smaller the f-number) the more depth of field you can capture in your shots.

The easiest way is to use Av mode (or Aperture Priority) on your camera's top dial, then rotate the wheel behind the shutter button to change the aperture – while your camera automatically adjusts the shutter speed – to capture an accurate exposure.

Use a wide aperture (such as  $f/4$ ) if you want to restrict the zone of focus and capture a shallow DoF. Or if you want to make sure as much of the shot is as sharp as possible, close down the aperture to a narrower setting (such as  $f/16$ ) to capture a greater DoF.

The second factor is your focal length – in simple terms, as your focal length increases,

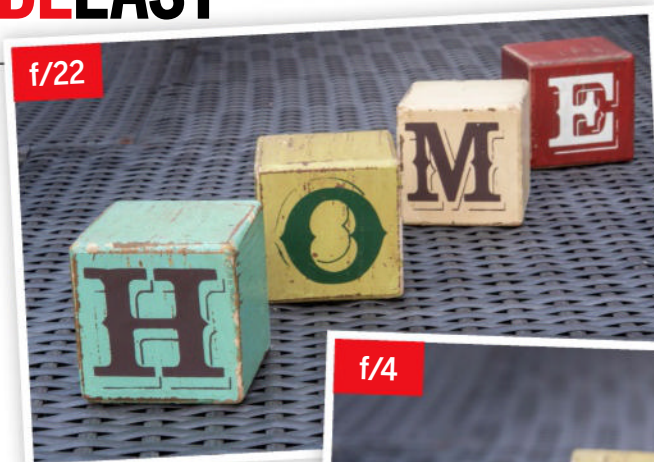
your DoF decreases, and vice versa. Wide-angle lenses offer much greater depth of field than telephoto zooms. So, for keeping everything in the frame sharp, a wide lens focal length of 18mm, or wider, is a good start. Similarly, if you want to blur the background as much as possible, switch to a long telephoto lens with a focal length of, say, 200mm.

The third factor is your distance from your subject or focal point – aka your focusing

distance. The closer your lens is focused, the less depth of field you capture.

Therefore, to maximize the amount of depth of field, use a wide focal length and a narrow aperture, and don't focus on anything too close to you!

And if you want to keep backgrounds artistically blurred, drawing attention to just a single part of the scene, use a long telephoto, set the widest aperture, and get closer to your subject. 📷



Shot on a smaller APS-C sensor EOS 7D Mk II at 55mm, there's a clear difference in the amount of depth of field between  $f/4$  and  $f/22$



Shot at 70mm on a full-frame 5D Mk IV, both scenes might look sharp, but zooming in at 100% on the clock, it's out of focus at  $f/2.8$  compared to  $f/16$



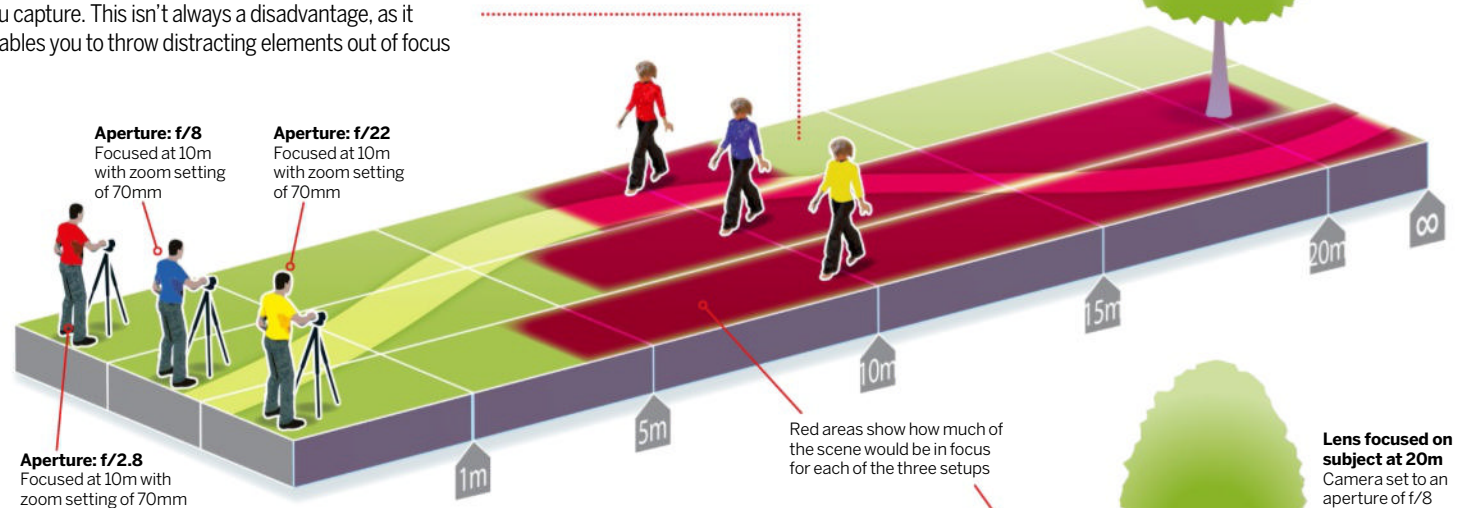
Shoot at wide focal lengths with narrow apertures to ensure scenes are sharp from foreground to background. This was shot at 24mm and  $f/11$

# Three ways to affect your depth of field

How aperture, focus distance and focal length control what appears sharp

## Changing the aperture

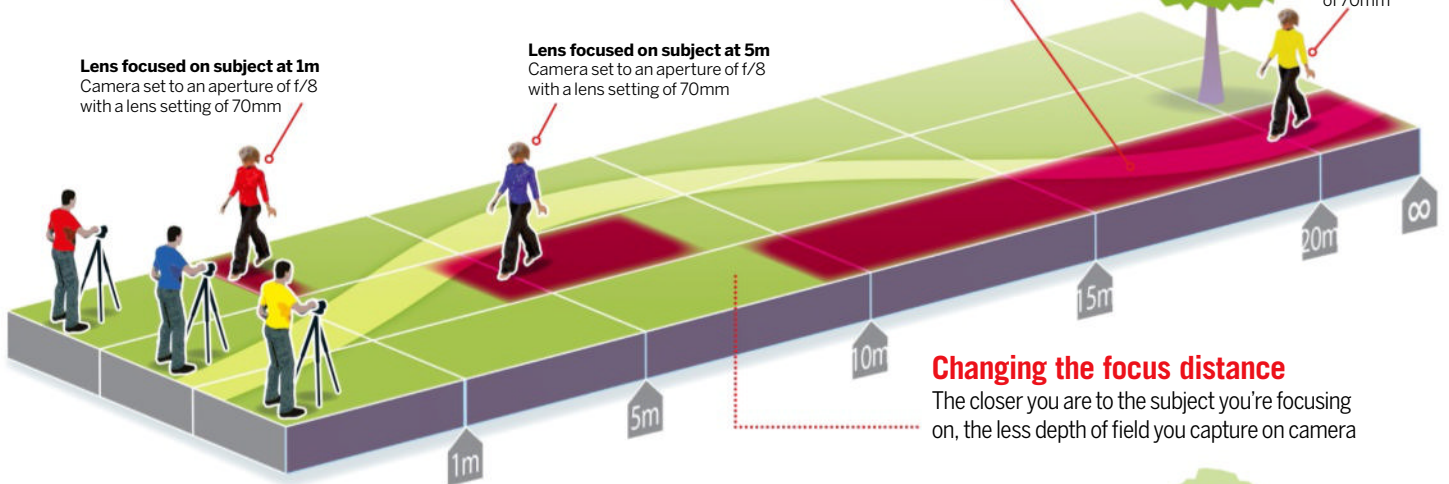
The wider the aperture you use, the less depth of field you capture. This isn't always a disadvantage, as it enables you to throw distracting elements out of focus



**Lens focused on subject at 1m**  
Camera set to an aperture of f/8 with a lens setting of 70mm

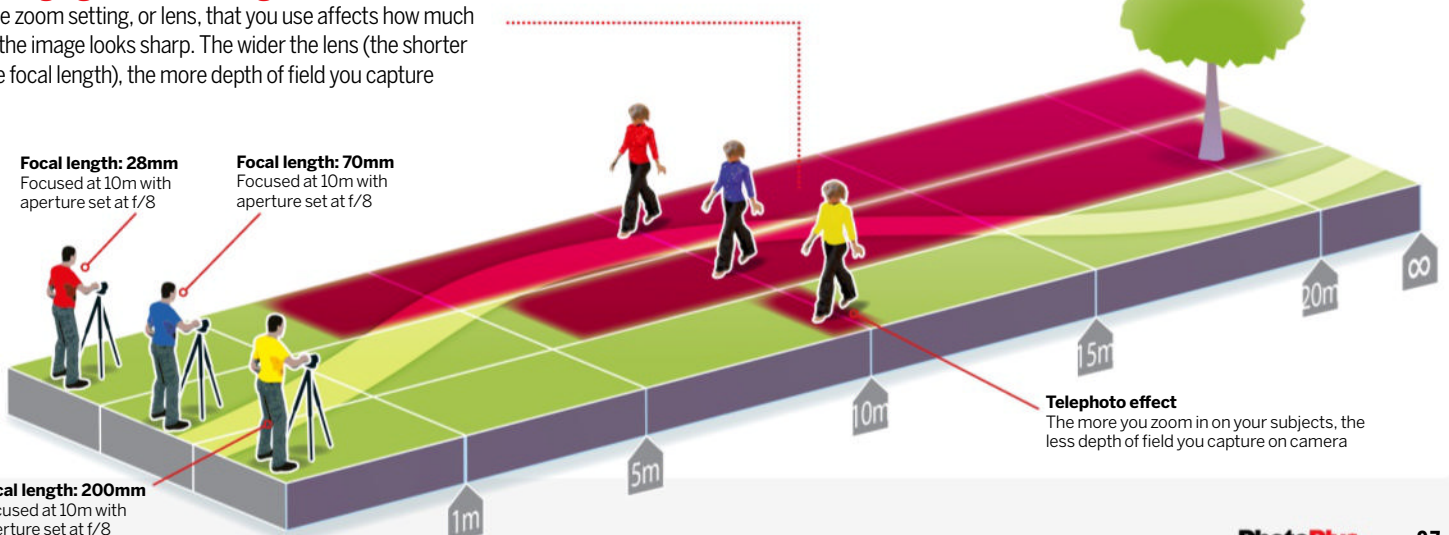
**Lens focused on subject at 5m**  
Camera set to an aperture of f/8 with a lens setting of 70mm

**Lens focused on subject at 20m**  
Camera set to an aperture of f/8 with a lens setting of 70mm



## Changing the focal length

The zoom setting, or lens, that you use affects how much of the image looks sharp. The wider the lens (the shorter the focal length), the more depth of field you capture



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**Peter Travers**  
Editor

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## Aurora over Hound Tor

Dartmoor National Park, Devon. 04:27am. 24 April 2023

*A chance look at social media at midnight got David up and out with his new Canon EOS R3 shooting colourful aurora until the early hours*

**O**ver the last four years I have been trying to steer my business without social media. It's not been so straightforward, but I have never got on with any platform and the process. As a creative person I can imagine nothing worse than my audience digesting my imagery, along with updates from their grandchildren and photos of people's dinners.

That's not to say I don't use social media. I use the internet for what I believe it is intended for – following stupid stuff that makes me laugh! I like calamitous cat videos, American monster trucks, mountain biking mayhem. No news, no 'doom scrolling', nothing heavy. I like to stay light.

Late one night in early April last year, when the UK orchid flowering season was just beginning, I'm looking on Twitter (or X – was that rebrand really necessary) as I like to follow the findings of a few local botanists and fellow orchid enthusiasts.

I turned off the bedside light just as a post popped up – 'I can't believe I would ever see aurora in Penzance!' Wow, you can see aurora in Penzance? That must mean I can see aurora on Dartmoor... I shot out of bed to the window.

*"What the hell are you doing?"  
"I am going up Dartmoor!"  
"But it's after 12..." said a weary Rachel.  
"It's actually 12:45," I confirmed. "I have to go to work!"*

Mobile, camera bag, tripod, Canon EF 24-70mm f/2.8L II USM. Flask – check.

This is also the maiden voyage of my flashy new Canon EOS R3. Other than documenting the kitchen, this bad boy's menus are primed, and for its debut, it is about to see something really special.

I set off. Then immediately drive back home as I have a video fluid head on the tripod. I sneak in, climb the stairs to my office like it's *Mission Impossible*, grab the tripod head, and get back on the road.

I get to Bovey Tracey and excitedly take a few north-facing roadside shots. Everything is blurred. What is going on?! The lens is at infinity? Then it dawns on me – I'm using my drop-in filter mount adapter EF-EOS R. It's the only one I have with me, and for my infrared system, with drop in IR filters. I need the basic RF adapter that came with the R3. I have just learned a hard lesson: you need a clear filter in or it doesn't focus to infinity!

Lens	Canon EF 24-70mm f/2.8L II USM
Exposure	20 secs, f/4, ISO6400






---

**“The sky is magenta, almost pink with aurora, but only towards the horizon. I am going to need a foreground”**

---

I am back home again, climbing the creaking stairs! It's now 02:20am in the morning and I haven't done anything yet. I am getting slightly frantic. I hit the road again, and reach Haytor, taking gulps of coffee. I can't see much other than a starry night, but the R3 soon translates that for me. I shoot a frame on the EF 24-70mm f/2.8L, at f/2.8, 70mm, just to get a bit further into the scene. The sky is

magenta, almost pink with aurora, but only towards the horizon. I am going to need a foreground, I need a tor! Hound Tor it is – the tor where my obsession with night photography began back in 2007, with the Canon EOS 5D.

This is going to take light painting, a high ISO, f/4 and a 20 sec exposure. I set the lens to 24mm, turning the focus ring around a 1mm away from infinity. You can actually get some hyperfocal distance even with the lens at a wide aperture. I select ISO6400 (well you would with the R3). Wow. Such beautiful saturated colours, sharp stars and side lighting.

I admit that thanks to social media, I spend the next 20 mins dancing a waltz with a Petzel head torch on – you'll be pleased to know I hadn't forgotten it! 📸

**NEXT MONTH BRITTANY, FRANCE**



## DAVID CLAPP

Canon professional photographer

**DAVID CLAPP** has been a full-time Canon professional photographer for 15 years and for the last 12 he has lead exciting workshops. He regularly works for Canon UK and is represented by Getty Images. Visit [www.davidclapp.co.uk](http://www.davidclapp.co.uk) for a portfolio of inspiring photos and information on all of his workshops.

# HOPE AND HOMES FOR CHILDREN



# URGENT APPEAL



## Russia's brutal invasion of Ukraine is not just a humanitarian crisis for the Ukrainian people; it's a child protection emergency.

Up to 100,000 children warehoused in Ukraine's vast orphanage system – a network of over 700 buildings – risk being forgotten. Left to face the dangers of war alone as staff flee. As families are torn apart or forced from their homes, many more children are at risk of being separated from the love and protection they desperately need. Worse still, they are at risk of trafficking, or being placed in overcrowded, understaffed and poorly resourced orphanages in border countries.

## We must act now.

Born out of the Balkans conflict 30 years ago, we've championed the vital importance of family and community-based care of children and our teams are on the ground in Ukraine, Moldova and Romania to ensure this war does not rob children of the love and protection they need now more than ever. Across all three countries, we're directly supporting displaced families and unaccompanied children with material and emotional

support. We're working closely with authorities to keep families together when they are at their most vulnerable and to fight for the safe tracking, monitoring and care for children without parental care. And we won't stop when the fighting stops.

## Will you help us by donating?

With your help, we can avert a child protection crisis of epic proportions and ensure children are protected and kept in families. Never orphanages.

To help protect vulnerable children, donate online at: [www.hopeandhomes.org/donate](http://www.hopeandhomes.org/donate). Or call **01722 790 111** Monday – Friday 9am – 5pm.

Please quote **FP22 - P&D** when making your donation.

In the event that funds raised exceed what is needed to deliver Hope and Homes for Children immediate and longer-term response to this crisis, we will use donations where the need is greatest.

**HOPE AND HOMES FOR CHILDREN**



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 ALL OF OUR NEW PHOTO PROJECT AND IMAGE-EDITING VIDEOS CAN BE VIEWED ONLINE VIA THE WEB LINKS ON PAGES 44-59!

# CanonSkills

*Sharpen up your photography skills with our all-new photo projects and expert guides*



## New projects with video guides

Follow our Canon camera walkthrough guides and Photoshop editing videos

Welcome...

**THIS** month we have a super range of projects for you to get stuck into. Kicking us off on page 44, James heads down to his local woodlands to show you how to use off-camera flash to light forests in a new way. Meanwhile, I head into the city and show you two ways you can remove pesky people from your city shots for postcard-perfect photos, on page 48. I've also been trying out one of my favourite lens hacks on page 50, which involves shooting through your lens the 'wrong' way for stunning macro shots on the cheap. If you'd rather brush up on your editing skills don't miss Sean's Lightroom tutorial where he runs through important edits for portraits (on page 54), and James shows you how to use the latest AI to replace a background in Photoshop. If you prefer Affinity Photo, be sure to check out page 58 where James shows you how to turn photos in to artistic paintings.



**44 Down in the woods**  
 Dramatic off-camera flash skills for fungi close-ups in forests



**54 Adobe Lightroom**  
 Discover key Lightroom CC adjustments to boost your portraits



**48 Clear the streets**  
 We reveal two solutions to clean up busy city street scenes



**58 Affinity Photo**  
 Transform city scenes into colourful works of art in Affinity



**50 Macro on a budget**  
 Get closer to your subjects with this brilliant budget lens hack



**56 Tool School**  
 Use AI in Photoshop CC to replace backgrounds very easily

**VIEW THE VIDEOS**

**WHENEVER YOU** see this icon, you'll find an accompanying video to watch online, so you can follow along. You can view the videos on a smartphone, tablet or computer. See the links on the project pages.





THE MISSION

Learn to light mushrooms and fungi with off-camera flash

**Time needed**  
2 hours

**Skill level**  
Expert

**Kit needed**  
Camera, macro lens, Speedlite, small softbox or similar flash diffuser, tripod, water spray

# Flash fungi in forests

Elevate your macro skills with off-camera flash as **James Paterson** teaches you to capture stunning mushroom photos on the forest floor

**F**rom antibiotics to alcoholic drinks, organic decay to delicious food, fungi play an important role in all manner of things. They range from microscopic structures to the largest living organism on the planet. Underground, the ‘wood-wide web’ of fine tendrils creates a network that allows plants and trees to communicate. Above ground, the fruiting bodies form as mushrooms and other stunning structures, offering great opportunities for macro photography.

Fungi – and mushrooms in particular – tend to prefer dark conditions like dense woodlands, crevices in rotten wood and shady areas. When photographing in these murky spots, a burst of flash can provide a welcome lift to the scene. But it’s not just about increasing the light levels, a flash also gives you the opportunity to enhance the mood.

By firing the flash off-camera, either from the side, above, behind or even below, we can highlight the fine fungi features, draw attention to colours and textures or show the delicate gills on the underside. Whenever we add our own light into a scene like

this, the ambient daylight becomes almost like a secondary light source. We can decide whether the daylight plays a major or minor role in the exposure, either by balancing our flash with it for a subtle lift, or by overpowering it for a spotlight effect.

But before you head out in search of fantastic fungi, it’s worth saying that you shouldn’t touch anything you don’t know, don’t inhale spores and wash your hands after. As for eating foraged mushrooms, please heed the words of Terry Pratchett: ‘All fungi are edible. Some fungi are only edible once.’ 🍄

PROJECT 1

## ON LOCATION MAJESTIC MUSHROOMS

Get your off-camera flash set up correctly for fungi close-up shots

### 01 EXPOSURE & APERTURE

Set your camera to Manual Mode with shutter speed 1/30 sec, aperture f/8 and ISO100. A mid-range aperture will give you the sharpest results, as lenses tend to perform their best a couple of stops down from the max aperture. The depth of field will be limited so precise focusing is vital.

### 02 TRIPOD & FOCUSING

A tripod is a must for macro photography, not just because it lets you slow your shutter speed, but also because it means you can focus precisely. Manual focus is best. Use Live View and zoom in, then use the lens focus ring to ensure the front edge of the mushroom is sharp.

### 03 SPEEDLITE SETTINGS

Fired at 1/4 manual power, our Speedlite is placed slightly behind the subject and angled back towards the camera so that it doesn't spill onto the area beyond the subject. This helps the backdrop to appear nice and dark, which in turn helps the water drops to stand out.



### 04 FLASH TRIGGERS

Key to this technique is learning how to fire your flash off-camera for side light. You'll need a wireless trigger and receiver for this (we used a set of Godox triggers here). With tiny macro subjects, the slightest change to the position and angle of the flash can have a huge impact, so experiment with your flash placement.

### 05 SMALL SOFTBOX

A small portable Lastolite softbox is fitted over the Speedlite. This diffuses the harsh light from the flash bulb so that it looks softer and more natural. The softbox is angled so that the edge of it catches the subject, rather than directed straight at it. This feathers the light to give it more of a wraparound quality.

### 06 WATER SPRAYER

A spray of water can add atmosphere to your macro photography, especially if you're using flash. The flash will freeze the droplets and make them sparkle and glow. Spray the mushroom and capture drops falling off the bonnet. If your camera is on a tripod, you also have the option to combine several frames in Photoshop.



## TOP TIPS MUSHROOM PHOTOGRAPHY

Control your camera settings and flash for beautiful close ups of fungi

### DIFFUSED LIGHT FOR MACRO

One of the great things about close-up photography is that because the subject is so small, we don't need a big light source for lovely diffused illumination. The general rule with lighting is that the larger the light source, the softer the light. If you think about the size of the light in relation to the size of the fungi, it's akin to lighting a person with an entire bank of large soft boxes. So any small-ish softbox or umbrella on a Speedlite will work.



#### 01 BRING A BEANBAG

You'll be shooting low to the ground to capture fungi. A small beanbag like this comes in very handy to prop up your camera and keep it off the forest floor. A flip-out screen is also hugely useful for shooting at low angles, and waterproof trousers are ideal for kneeling down on damp ground.



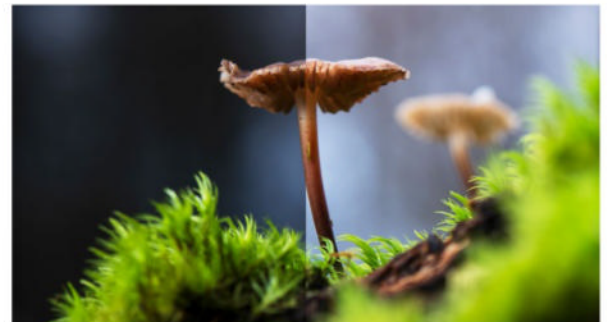
#### 02 CONTROL THE FLASH POWER

Setting the right flash power can take a little trial and error. Begin by working out a manual exposure without the flash. Set an aperture of f/8 at ISO100 and then adjust the shutter speed until things look dark. Next turn on the flash and use it to lift the subject. Here the flash is at 1/16 manual power.



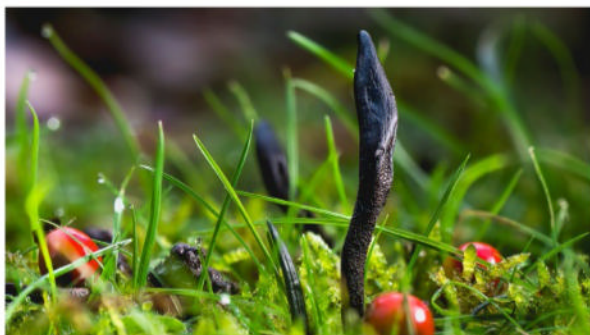
#### 03 COMPOSE WITH SPACE BEHIND

If you want to create a sense of depth, and blur out the background, find an angle with empty space beyond the subject. Shooting down the length of the fallen tree gives us space beyond the mushrooms. If we shot them straight on, it would be difficult to get the flash to the side and darken the backdrop.



#### 04 CONTROL AMBIENT EXPOSURE

Your shutter speed has no influence on the flash, only on the ambient light. Here the left photo was shot at 1/40 sec, the right at 1/20 sec. Notice the subject stays similarly lit by the flash, but the ambient light in behind changes. So if you want a brighter or darker backdrop when using flash, tweak your shutter speed.



#### 05 DRESS THE SCENE

When shooting close-ups, the tiniest distractions really stand out, so take the time to tidy any messy details, like stray strands of grass or flecks of mud. You might also want to 'dress' the scene. Here the red berries were scattered around the black Earth's Tongue.

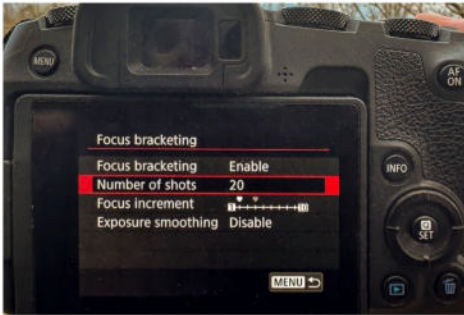


#### 06 FINDING FUNGI

Fungi grows year round in all kinds of conditions. Most prefer dark, damp conditions, although some like open spaces like fields. Check decaying wood and inspect the forest floor. This yellow spindle coral fungi can be found in mossy lawns.

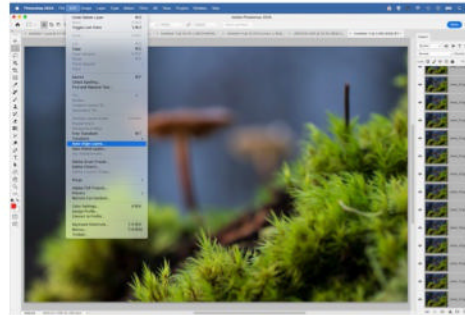
## EDITING TIPS FOCUS STACK YOUR FUNGI PHOTOS

Shoot for a focus stack then merge in seconds with Photoshop for front-to-back sharpness



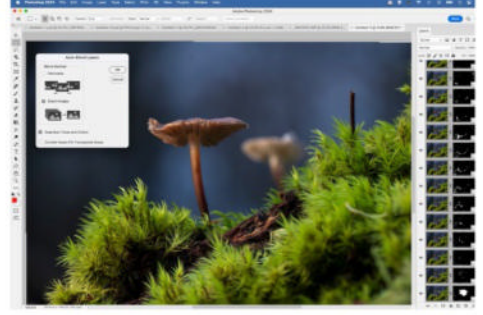
### 01 SHOOT FOR A STACK

For sharp macro subjects, try a focus stack. Focus on the closest point and take a shot, then shift the focus point back and take another. Continue until you've captured sharpness across the subject. Newer cameras have a Focus Bracketing mode that can shoot the stack for you.



### 02 ALIGN THE LAYERS

You can use Photoshop to combine the sharp parts into a single image. Go to File > Scripts > Load Files into Stack and load in your set of images. Go to the Layers Panel, highlight the top layer and hold Shift and click on the bottom layer to select them all. Go to Edit > Auto-Align Layers.



### 03 BLEND THE SHARP BITS

In the Auto-Align settings choose Auto and hit OK. Ensure the layers are highlighted then go to Edit > Auto-Blend Layers. Set 'Stack Images'; and hit OK. Grab the Crop tool and crop messy edges. Make tonal changes, then sharpen the image to finish with Filter > Sharpen > Unsharp Mask.

## TOP TIPS PUFF PIECE PHOTOGRAPHY

Create a spotlight effect with a flash head to capture a wolf fart\*

A flash light is a brilliant tool for nature close-ups because it lets you showcase the features you want. Here, for instance, by picking the subject out with the flash we can create a spotlight effect and allow the backdrop to become moody and dark. To do so, we set a manual exposure that underexposes the natural light (1/100 sec, aperture f/8, ISO100), then used our flash light to lift the foreground. This is the ideal set-up to show the puff of spores emitting from this little Stump Puffball. The puff wouldn't stand out without the flash to darken the background and light the spores. These spores are released by raindrops falling on the mushroom.

\*The scientific name for this family of mushrooms is *Lycoperdon*, which rather wonderfully translates as wolf fart.





## PROJECT 2

### THE MISSION

To take clean street shots free of people

**Time needed**  
30 mins

**Skill level**  
Intermediate

**Kit needed**  
Canon EOS camera  
Tripod  
ND filter  
Photoshop

# Clear the streets

Dan Mold shows you how to remove people from tourist hotspots

**S**ome of the world's most popular and spectacular locations are unsurprisingly very popular as tourists flock in droves, whether it's Rome's Colosseum, the Eiffel tower in Paris or the Great Pyramids of Giza in Egypt. Even busy cities like Edinburgh, or

seaside beach towns, are often full of people and tourists going about their day. As a photographer you may be able to perfectly wait for a time when there's a gap and you're able to take a shot without any people. However for many locations this just isn't possible due to the high footfall. Another option would be to beat the

crowds and arrive early but this restricts you to the type of available lighting you'll get at those more unsociable hours.

So, in this project, we look at two different ways you can work around this issue for cleaner scenic shots – one in-camera and another method using Photoshop. Let's get to it... 📷

## TECHNIQUE 1 STACK & STITCH



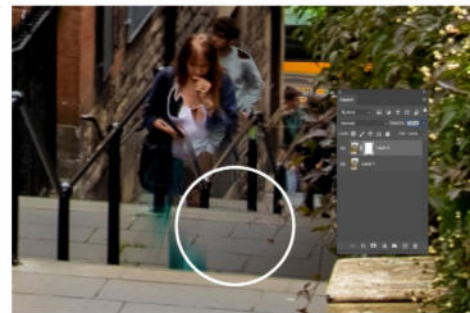
### 01 SET UP ON A TRIPOD

You'll be taking multiple images of the same scene and stitching together the best parts in software. To make the stitching process as simple as possible, it's best to set up on a tripod and lock off the focus and settings for consistent results.



### 02 WAIT FOR MOVEMENT

Now you'll need to take multiple images patiently waiting for there to be enough movement between frames so you have enough of the 'good' parts of the scene you can stitch together to make a totally clear street shot in post-production.



### 03 BLEND IN PHOTOSHOP

Select all of your images in Bridge and go to Tools>Photoshop>Load Files into Photoshop Layers. Click the Add Layer Mask icon, then with a soft black Brush tool paint over the area where people are to reveal the clear scene on the layer below.

## TECHNIQUE 2 BLUR WITH A LONG EXPOSURE



### 01 ATTACH YOUR FILTERS

Another technique is to use a long exposure to blur the people in-camera to remove them, so that only the stationary buildings are left sharp. Set up on a tripod and attach filters like a neutral density or polarizer which will both reduce light flow.



### 02 SET UP IN A BUSY SCENE

This busy coastal path in Lyme Regis was perfect to demonstrate this effect, as we wanted a shot of the colourful beach huts without the crowds of people which looked a bit distracting. We set up on a tripod and focused about a third of the way in.



### 03 TAKE A LONG EXPOSURE

Your exposure time will depend on the strength of the ND filter you use and also how much time is needed to blur the people – if they don't move much during the exposure they will appear as a dark blur, so you'll need a longer exposure.





## QUICK TIP!

When shooting on a tripod it's a good idea to enable the 2-sec Self-timer mode to avoid any shake when you press the shutter

## IMAGE STABILIZATION OFF FOR SHARPER SHOTS

Image Stabilization is great for reducing the movement and vibrations that are caused from hand-holding your Canon. However, when your camera is mounted to a locked-off tripod there's no motion to correct, and some systems have been known to actually introduce blur into shots taken on a tripod. So for peace of mind, it's worth switching off any image stabilisation whether that's optical or in-body.





PROJECT 3

THE MISSION

Reverse an old prime lens for macro results

**Time needed**  
 One hour

**Skill level**  
 Intermediate

**Kit needed**  
 • Canon EOS body  
 • Old prime lens  
 • Reversing ring

# Macro on a budget

Dan Mold shows you how to capture detail without breaking the bank

**M**acro is an amazing genre to get stuck into that allows you to magnify your subject for super-detailed close-ups, revealing a brand-new world, otherwise hidden to the naked eye.

But, if you've ever tried to take a close-up using a standard lens,

such as an 18-55mm kit lens, you might be a bit underwhelmed.

A dedicated macro lens is usually required to take close-ups. These special optics come with reproduction ratios of at least 1:1, also called lifesize, because you can capture your subject at the same size as if it was laid across your Canon camera's sensor.

However, macro lenses can be pricey and won't be in budget for many in the current cost of living crisis. Luckily, in this project we take a look at a cheap and cheerful lens hack that will let you experiment with macro magic without breaking the bank. Here's how you can reverse an old film lens for terrific close-ups. 📷

## TOP TIPS YOUR CANON CAMERA GEAR SETUP

Discover camera and photo kit needed for top macro shots with this cheap lens hack



**01 TRIPOD**

Tiny movements in your camera and lens will be exaggerated when shooting macro close-ups. Therefore, a sturdy tripod is a good idea to eliminate camera-shake. A tripod also makes it possible to take a batch of photos for focus stacking.

**02 REVERSING RING**

Reversing rings are inexpensive (£12.95) and screw into the front filter thread allowing it to be mounted to your camera in reverse. Just be sure to order the correct Canon camera mount and the right lens filter thread size for your setup.

**03 OLD PRIME LENS**

An old film lens such as a 50mm f/1.8 with a physical aperture ring is ideal for this technique as the apertures on modern digital lenses tend to close down or open fully unmounted. You should be able to pick up an old prime lens for less than £20.

**STANDARD 50mm**



**REVERSED 50mm**



### **FINDING AN OLD PRIME LENS**

There are loads of places to pick up old film photography equipment such as SLRs and lenses, from online auction sites like eBay to camera shop websites. The Disabled Photography Society also usually has a brilliant assortment of second-hand bargains at The Photography & Video Show, so you may be able to pick up a bargain there if you're attending – it's between 16-19 March at the NEC in Birmingham ([www.photographyshow.com](http://www.photographyshow.com)). Be sure to have a good look through old lenses for internal dust or fungus that could make them unusable.

#### **QUICK TIP!**

The wider the focal length of your prime lens, the more zoomed in and macro it will become when reversed

## PROJECT 3



### STEP 1 REVERSING RING

You'll need an old prime lens from a film SLR with a physical aperture ring, as this makes it possible to dial in aperture adjustments to control depth of field when the lens is mounted backwards. Our Olympus Zuiko 50mm f/1.8 may not fit our Canon EF mount natively, but when reversed this doesn't matter. Make sure you get the right reversing ring to fit your camera mount, but also make sure the filter thread is compatible with your lens too – this can usually be found on the inside of the lens cap. Reversing rings can be found at websites such as [srb-photographic.co.uk](http://srb-photographic.co.uk). Once you have yours, all that's left to do is to screw it into the front filter thread and mount it to the camera.



### STEP 2 SET UP ON A TRIPOD

Even the smallest of movements and vibrations will be magnified when shooting macro and show up in your photos as image-softening camera shake. To give your close-up shots the best chance of turning out pin-sharp, it's best to set up on a sturdy tripod. This will also help you nail the precise focus point, as depth of field can be particularly fiddly at such high magnifications. Firstly, set up your subject on a table and compose your image freehand (below). Once you've worked out a strong composition, you then know roughly where to set up your tripod. Use the thickest leg sections of your tripod first as they will be the sturdiest, and only use the centre column for extra height as a last resort, as they're prone to wobble.





### STEP 3 MANUAL MODE

With any connections to the camera body severed, you'll need to go into your Canon's Manual mode (M on the mode dial) to take full control of the exposure settings. We find it easiest to use the built-in light meter as a guide and also working with exposure simulation turned on in Live View to get an accurate idea of the exposure. The aperture will need to be set manually on the lens's aperture ring. The wider this setting – the more shallow the depth of field will be. Although to get the aperture to close down you may need to hold down a depth of field preview button. This was found on the base of our Olympus lens, but this function will differ from manufacturer to manufacturer.



### STEP 4 FOCUS AND SHOOT

Shoot next to a large window for natural side light and use a net curtain for extra diffusion, or add your own light source with a flash or torch. Now with your camera set up on a tripod, the easiest way to focus is to move your subject rather than the camera. Place your item, such as our pocket watch, on a sheet of card. You can then move the card away from or towards your camera until it falls into the perfect zone of sharpness. It's then just a case of enabling the 2 Sec Self-timer to reduce camera shake, and firing the shutter. For even more magnification, you might want to attach a series of extension tubes or try using a prime lens with a wider focal length.

**BEFORE****AFTER****THE MISSION**

Create dramatic portraits with Lightroom Classic's panel slider options

**Time needed**  
15 minutes

**Skill level**  
Beginner

**Kit needed**  
Adobe Lightroom Classic CC


# Enhance portraits with panel sliders

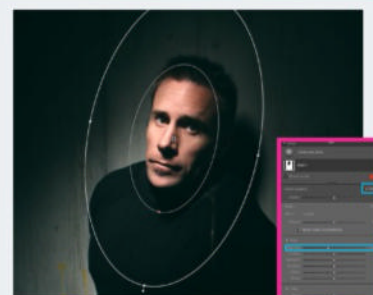
Sean McCormack shows how to combine these controls to great effect in Lightroom Classic

**L**ightroom Classic CC's Basic panel sliders work well in pairs, and their interaction can lead to some interesting effects. The often-used -100 Highlights and +100 Shadows give a faux HDR look, while blacks and whites can set the contrast. Each of those interact with exposure, and the combination of those can have different looks to what you'd expect.

These can be used for cityscapes, night scenes and rainy photos, but here we're thinking about portraits. Let's take advantage of these edits in

making a male portrait look really moody. Here's a single light portrait shot in an underground car park, using a flashgun in a 16in softbox, so it's as basic as it gets with lighting.

Clean-up work has been done to heal spots, so this is only about the look. To create the mood, go to the Basic panel in Develop and start by combining a high blacks level with reduced exposure. This darkens everything. Adding highlights and whites brings back the face. To finish the look, you can fade the appearance of the shadows and add colour using the Point Curve. 

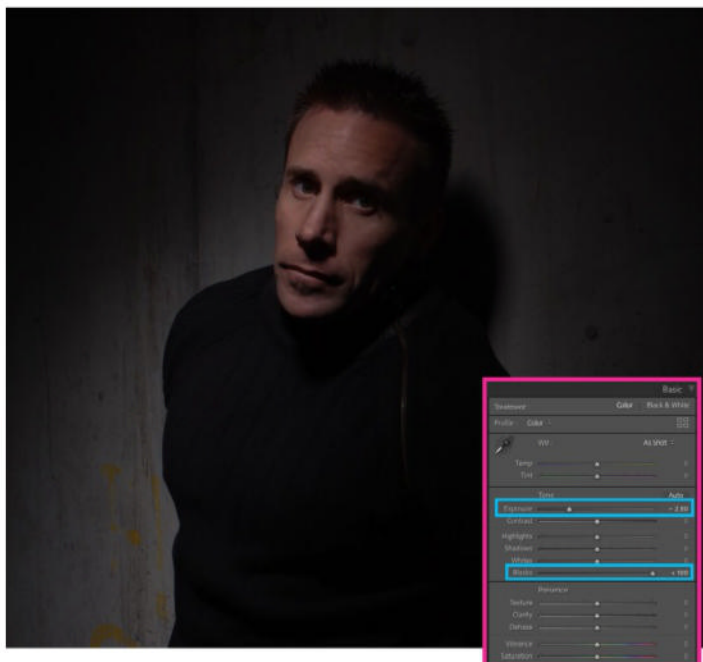
**RADIAL FILTERS**

**IT'S NOT** essential, but you can add a Radial Filter around the face to darken outside it. Use the shortcut Shift+M, then drag the Filter out and create a shape to match the angle of the face. Click Invert, then reduce Exposure to taste. Here, it's -0.84.

DOWNLOAD PROJECT FILES TO YOUR COMPUTER FROM:  
<http://downloads.photoplusmag.com/pp215.zip>

## STEP BY STEP SET THE TONE FOR DRAMATIC PORTRAITS

Achieve a new look by going back to basics with lighting and pairing the effects of panel sliders



### 01 DARKEN THE IMAGE

Reduce the Exposure to -2.50 stops. This assumes the starting shot is reasonably well exposed – change this based on what the photo needs. Now, bring the Blacks slider up to 100. The image is obviously darker, but still with a surprising amount of detail.



### 02 HIGHLIGHT THE FACE

Here, you bring back the face. Increase Highlights to +70 – any more than this and the face starts to look odd. There's still more needed, though, so setting Whites to +50 will bring that needed life back to the face.



### 03 BRIGHTEN THE PHOTO

Now for the shadows. Open Tone Curve and click on the second of the five icons above the curve window to choose the Point Curve. Raise the bottom-left point until Output reads 15 (Input is 0), then click and drag just past the halfway mark up to brighten the photo (Input 148, Output 171 roughly).



### 04 ADD WARMTH

Click the third option for the Red channel. Move the left point to the right a little. This can be subtle or strong. Here, it's a more subtle Input 9, Output 0. Click on the final curve, the Blue channel. Bring the top-right point down to add warmth to the highlights (Input 255, Output 242).



**AFTER**

**BEFORE**

# Generate AI backdrops in Photoshop Beta

## THE MISSION

Join the new generation of image creators embracing AI technology to quickly add a new background

**Time needed**  
15 minutes

**Skill level**  
Beginner

**Kit needed**  
Photoshop CC Beta


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<http://downloads.photosplusmag.com/pp215.zip>

**James Paterson** demonstrates the new filter that creates backgrounds based on a few words

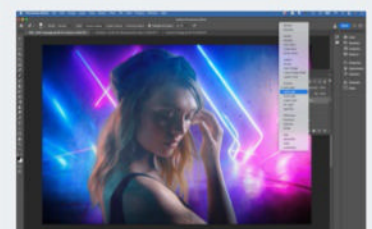
**If you've been paying attention to photography news, you can't have failed to notice the furore over AI image generation. Generators like Stable Diffusion, Dall-E and Midjourney make it possible to create artwork from nothing more than a sentence.**

This has caused great excitement and apprehension among photographers, and the way these tools gather and reassemble the substance of existing photos raises real concerns about intellectual

property. Whether you see AI as groundbreaking or a threat to traditional photography, we're entering a new era of image-making. Users looking to experiment with text-to-image generation will find an intriguing new tool within Photoshop Beta. The Backdrop Creator Neural filter lets you create a new backdrop from a few words.

Of course, as it's Beta it's not the finished article, but it's worth experimenting with. It's designed to work with your photos, and as such it may offer a glimpse of how photography and AI can work together in the future. 

## 15 FREE TEXTURES



**ONE OF** the challenges when mixing a cutout with a new backdrop is making the two elements look like they belong together. There are some potential solutions, such as adjusting the colours and tones, adding a vignette or applying other filter effects. Another trick is to add a texture layer above everything, then use layer blend modes to combine it with the layers below. We've supplied 15 high-resolution textures – drag them into your image and experiment with blend modes, opacity and layer masking.



# STEP BY STEP DEVELOPING THE FUTURE OF IMAGES

Photoshop Beta collects image data to produce abstracts and patterns using text prompts

## 01 PHOTOSHOP BETA

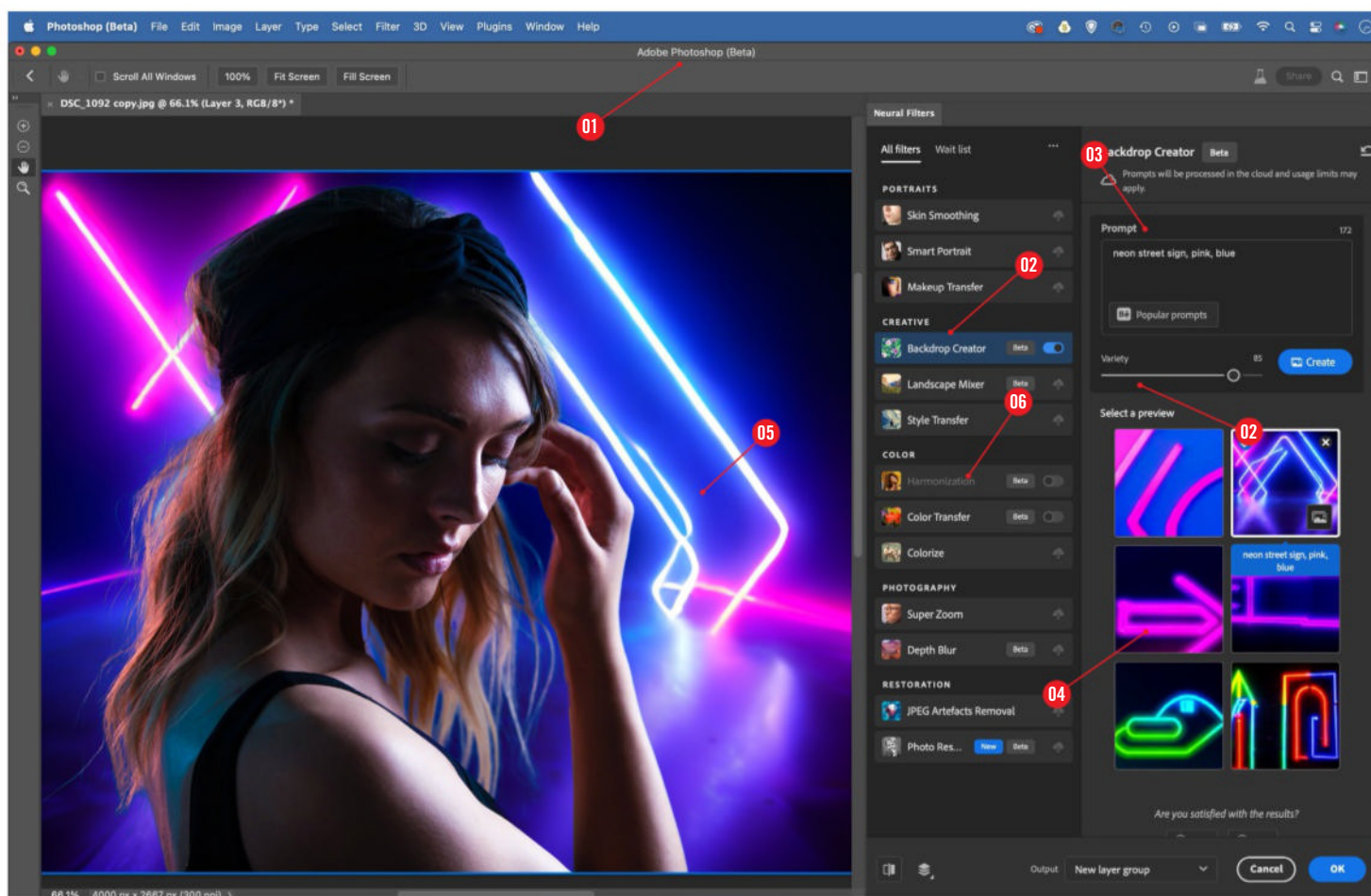
Photoshop Beta is separate to Photoshop. In most regards it's identical, but Adobe uses it to trial new tools and filters like the Backdrop Creator filter, while gathering usage data that helps to shape the finished product. Anybody with a Creative Cloud subscription can download it. Open your Creative Cloud app and go to the Beta Apps tab on the left, install and launch it. Open an image to get started.

## 02 BACKGROUND CREATOR FILTER

The Background Creator can be found under Filter>Neural Filters. You'll need to download the filter if it's your first time using it. It won't let you craft highly detailed scenes, so you won't get photo-realistic results. It's more geared towards creating abstracts, patterns and blurred impressions. As such, it works well when combined with portraits where the background would be out of focus.

## 03 TEXT PROMPTS

Type your text prompts here. We tried 'neon street sign, pink, blue' to generate the backdrop for our portrait. Some text prompts aren't permitted – for instance, anything related to people will be met with 'Filter does not support human imagery'. You'll also occasionally see that words are omitted. You might find you get more detailed images if you add in words like HD (high definition) or 'photograph'.



## 04 GENERATED IMAGES

After typing your text prompt, the filter will generate three images. Click on the thumbnail to see how one will look. Any ticked images will be created as separate layers once you hit OK. If you like the look of it but want to see more variations, click the 'More like this' icon to generate three more options. Set Variety to a high value, and use a low value to focus on specifics.

## 05 CUT OUT

Start the process by cutting out a person or object. Open the image, then go to Select>Select and Mask. Click the Select Subject button, then click the Refine Hair button. Use the sliders to fine-tune the selection edge, then choose Output: New Layer with Layer Mask and hit OK. Highlight the bottom layer, then go to Filter>Neural Filters to start using the Background Creator.

## 06 TRY HARMONIZE

Once you've generated the new backdrop, it's likely that you'll need to tweak the colours in the subject. The Harmonize filter can be useful. Go to Filter>Neural Filters and turn on Harmonize. Target the background in the Source dropdown, then use the sliders to fine-tune the results. Output to a new layer and experiment with the layer opacity to control the strength of the effect.



BEFORE



AFTER

### THE MISSION

Blend a paint photo with a city scene and fine-tune the effect with selections and layer skills

**Time needed**  
30 minutes

**Skill level**  
Intermediate

**Kit needed**  
Affinity

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<http://downloads.photoplusmag.com/pp215.zip>

# Manhattan makeover

**James Paterson** shows you how to transform cityscapes into eye-catching artwork with a combination of blending and selection skills in Affinity

**W**ith their angular lines and bold shapes, architectural photos and cityscapes are the perfect subject for a creative makeover in Affinity Photo. In this project we'll explain how to transform the iconic New York skyline into a bold array of painterly splashes and drips. This involves a cunning combination of selection skills and layer blending.

We begin by preparing our photo of the city, converting it to black and white and boosting contrast so that we have a bold foundation to work with. Once done, we use the Pen tool to isolate each vertical street, so that we can apply different colours to each. This helps to tailor the painterly effect to the image, as the streaks of paint we add will match up with the shapes we create for each street.

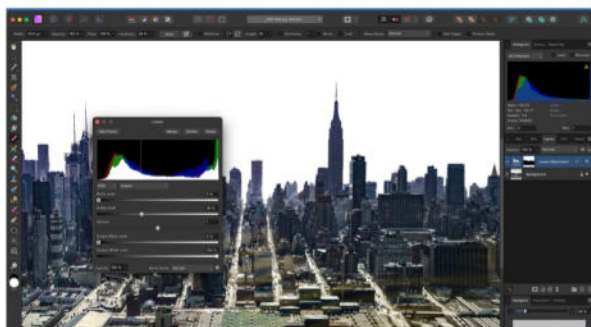
You can find lots of free photos of paint streaks online, but there's

something to be said for making your own. Here we painted a few colourful streaks of watercolour paint on a piece of white paper. We kept the streaks in loose, vertical lines then photographed the paper at a low angle. This way, the streaks of paint could match up with the straight lines of New York streets in our photograph.

From here, we can finesse the effect with simple layer skills, adjusting colours and positioning pieces in the puzzle until it all fits together perfectly. 🎨

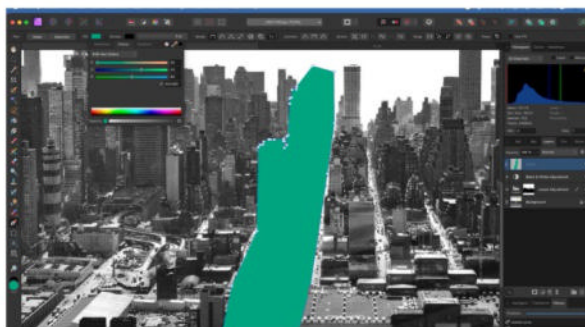
# STEP BY STEP CITY SPLATTERS

Transform city scenes into colourful art in Affinity Photo



## 01 BLOW OUT THE SKY

Open the image then grab the Selection brush. Check 'Snap to Edges' in the options then paint over the sky and background details. Click Refine and increase the Border to improve the selection edge. Hit OK then click the Adjustment icon and choose Levels. Drag in the White Level to blow it out.



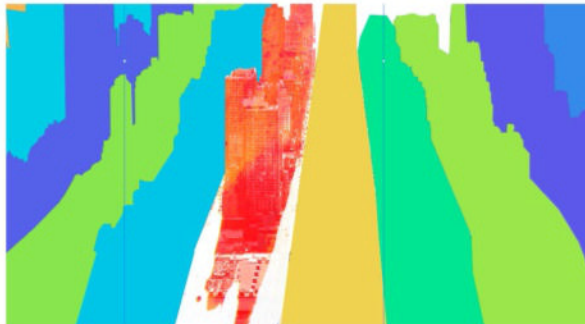
## 02 TRACE AROUND A STREET

Add a Black and White Adjustment. Next zoom in close and grab the Pen tool. Click to add anchor points and make a path that follows the shape of one of the streets, including the tops of the buildings. Click back on the starting point to complete the path. Click the Fill option and give it a random colour.



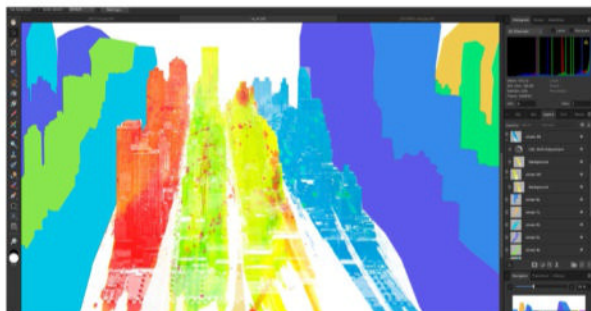
## 03 MAKE SHAPES FOR STREETS

Right-click the layer and choose 'Rasterize'. Next trace around the next street with the Pen tool and complete it loosely within the other street shape. Fill and Rasterize again, then Cmd/Ctrl+click on the street shape below to load a selection and hit Delete so that the edges match up. Repeat for the rest of the streets.



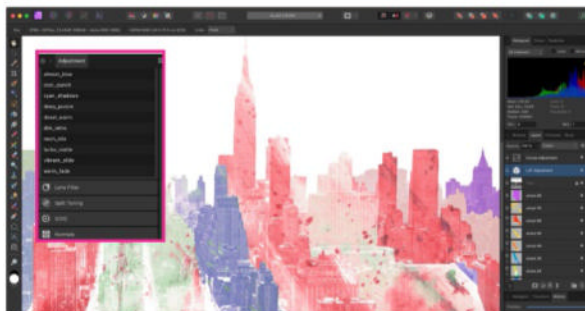
## 04 BLEND THE PAINTS

Open the paint image supplied. Grab the Lasso tool and make a rough selection around one of the streaks. Copy (Cmd/Ctrl+C) and Paste (Cmd/Ctrl+V) it into the main image, then drag the layer onto the layer name of one of the shapes. Set the blend mode of the shape layer to Screen.



## 05 FILL THE SCENE

Click the arrow in the layer thumbnail to expand the layer, grab the Move tool and position the paint streak to fit neatly over the street. Hit Cmd/Ctrl+U and adjust the colours if you like. Repeat the process by copying in another paint streak and placing it over the next street. Carry on until all the streets are filled in.



## 06 PERFECT THE COLOURS

After hiding all the layers except the bottom three, then hit Cmd/Ctrl+Shift+Alt+E to merge a copy. Drag this new layer to the top of the stack, then set the Blend Mode to Screen. Fine-tune the colours and try blending textures with layer blend modes (see box) to finish off your project.

## QUICK TIP!

Hit Cmd/Ctrl+U to summon the HSL dialog and use the Hue, Saturation and Lightness sliders to quickly shift colours to suit your vision

## BLEND TEXTURES

An artistic treatment like this goes hand in hand with a texture blend. We've finished off here by blending a subtle paint texture using the Darken Blend Mode. Try blending your own painted textures with your photos, and experiment with layer blend modes and opacity. Useful blend modes to try are Lighten, Screen, Multiply, Darken, Overlay and Soft Light. As well as textures, you can also use LUTs (colour lookup tables) to transform or unify the colours. There are several default LUTs in Affinity Photo, and you can download and install third party LUTs with ease.

## NEXT MONTH RAW TIPS FOR PORTRAITS



# ESTEBAN FREY

*Working as a cabin crew member has helped Esteban Frey visit some of the world's richest habitats. Here, he shares his love of adventure, and why wildlife photography is as much about being in the moment as taking beautiful pictures*

**A**LTHOUGH many wildlife photographers work close to home and focus on local species, few can deny the appeal of capturing faraway locations and more exotic creatures. One challenge that nature photographers face is the cost of making trips away, and they often offset this by running workshops abroad or taking paid assignments. Passionate wildlife photographer Esteban Frey has taken a different route, however. For the last six years, he's worked as a member of an airline cabin crew, and while travelling the world he's been able to capture some of his best work on his days off.

Taking photos of elusive animals requires time and patience, along with the passion to succeed alongside plenty of competition. Esteban grew up surrounded by family who were equally excited about the outdoors, and he combined his appreciation for nature and love of photography, learning everything he could online to improve his technical skills. Now, after more than 11 years of

## 01 BEAR NECESSITIES

A young female brown bear among cotton grass on a summer evening, in Viiksimo, Finland

Lens Canon RF 100-500mm F4.5-7.1L USM

Exposure 1/60 sec, f/5.6, ISO800



02

## 02 FEATHERED FRIEND

A chestnut-mandibled toucan in San José, Costa Rica

Lens Canon EF-M 22mm f/2 STM

Exposure 1/30 sec, f/2, ISO160

## 03 INTO THE BLUE

A herring gull stands on an iceberg in Jökulsárlón Lagoon, Iceland

Lens Canon EF 70-300mm f/4-5.6L IS USM

Exposure 1/200 sec, f/5.6, ISO100

## 04 ALL TUSKED UP

A couple of walrus rest on the beach in Svalbard during the polar day

Lens Canon RF 100-500mm F4.5-7.1L IS USM

Exposure 1/125 sec, f/6.7, ISO100

wildlife photography, Esteban is nearly ready to turn his passion into a profession. We find out what drives him, why Canon is the only brand he'll use, and why he's optimistic about the conservation of the natural world.

### Hey, Esteban. Where are you now, and what are you working on?

Since 2018, I have been working as a cabin crew member, a job that has taken me to numerous regions of the world. This has allowed me to explore and



03

document the diverse wildlife of each destination with my ever-present camera. For example, in December 2023, I worked on a flight to Osaka. After asking questions in wildlife photography Facebook groups and searching for wildlife spots on Google Maps, I discovered a location in Kyoto, only 30 minutes by train from Osaka, that is inhabited by snow monkeys. During my three-night layover, I had the amazing opportunity to photograph the spectacular Japanese macaque. In 2024, I am planning to become a full-time wildlife photographer.

### Exciting! Do you think there will be challenges to being a professional photographer?

Becoming a full-time wildlife photographer will be an exhilarating yet challenging journey. The profession demands not only a keen eye for capturing the beauty of nature but also resilience in the face of financial instability. There's a lot of competition out there, which means I'll need a distinctive style to stand out, and there's the considerable expense of top-tier equipment posing a financial hurdle. Extensive travel to remote locations will become the norm, coupled with the physical and environmental challenges of

**“There's a lot of competition out there, which means I'll need a distinctive style to stand out”**

unpredictable weather and demanding terrains. Despite these obstacles, though, I think the reward lies in the joy of immortalizing one-off moments in nature and contributing to wildlife conservation. It's a fulfilling adventure for anyone who can persevere.

To those thinking about becoming a wildlife photographer, I'd say they must do it only if that's what they truly want with all their heart. I am confident that when we believe in ourselves and our talent, combined with hard work, good results usually follow. At least, I'm willing to try and give it my all.

### How did you start (and grow) your career as a wildlife photographer?

My journey began many years ago, driven by a general passion for photography. I grew up in a family deeply connected to the outdoors and developed a strong bond with the wildlife in the



04

places I visited during family trips throughout my childhood. At first, I relied on my phone for capturing pictures. As I noticed improvements in my skills, I started to investigate which camera would have the most features that would suit my needs according to my budget. In 2014, I got a Canon EOS 7D Mark II. In 2018, I stepped into the mirrorless world with a Canon EOS M50, and in 2022, I acquired my current gear, which I have been thoroughly enjoying. A passion for photography is something I see lasting my lifetime.

### How did you learn the skills and craft?

I am a self-taught photographer. In the beginning, there were numerous hours of practice and dedicated study online – these helped me to grasp the concepts of photography. YouTube also helped a lot, providing amazing tutorials where I learned the basics, such as the exposure triangle. Facebook groups have also proved to be a valuable source of information, offering forums with diverse topics and active discussions addressing technical questions people have. Over the years, I've observed the styles of other photographers, and they've inspired and helped to shape my own workflow.

## STORY BEHIND THE SHOT



### Close encounters

Esteban was on a self-drive safari and spotted this lion duo

I've chosen this image because it evokes a myriad of emotions. Audacity, field experience, knowledge and a stroke of luck combined to make this shot possible. I was

undertaking a solo self-drive safari, which is challenging because you have to balance driving and wildlife spotting. Seeing these brothers resting under the midday sun felt like a miracle, their camouflage working seamlessly. I reversed and with overwhelming joy confirmed their presence just 10 metres away as I captured this remarkable moment in Kruger National Park.

## 05 GOLD FEBRUARY LIGHT

A family of roe deer in Finland on a cold winter day

Lens Canon RF 100-500mm F4.5-7.1L IS USM

Exposure 1/50 sec, f/7.1, ISO100

## 06 WHITE-TAILED DEER

A juvenile walks among the bush on a beautiful summer day in southern Finland

Lens Canon RF 100-500mm F4.5-7.1L IS USM

Exposure 1/30 sec, f/6.7, ISO100

## 07 EYE CONTACT

A portrait of an adult brown bear in Viiksimo, Finland

Lens Canon RF 100-500mm F4.5-7.1L IS USM

Exposure 1/350 sec, f/6.7, ISO800

### How do you think your style has evolved over the years?

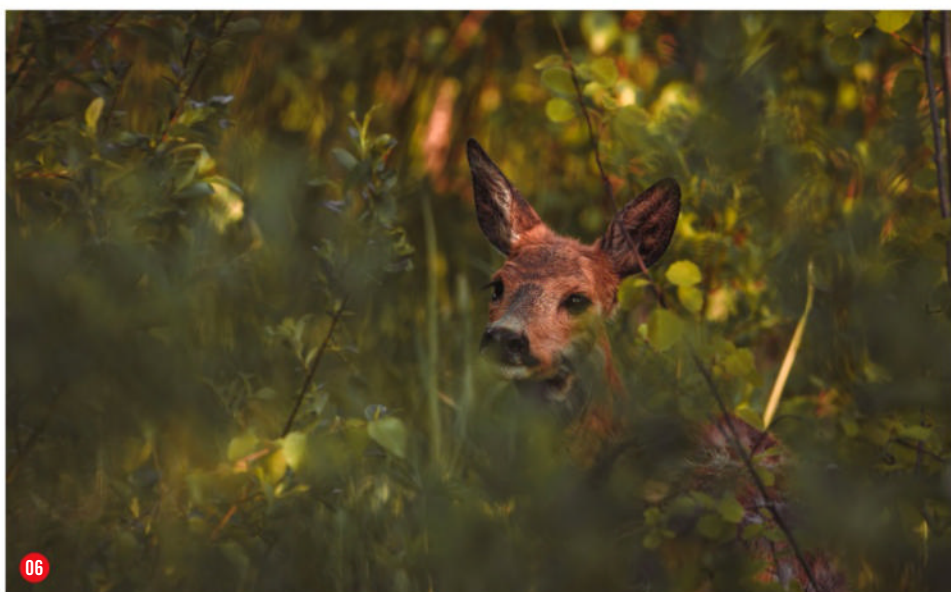
Given my fascination with animals, capturing portraits has given me a closer and more intimate perspective of beautiful creatures. I appreciate and enjoy other styles, but portraits, in particular, offer a lasting and intimate glimpse and create a lifelong memory of my subject. I guess my style has evolved through extensive hours of practice in the wild. Through repetition, I've enhanced my techniques and feel more confident in facing challenging situations, such as capturing elusive animals, navigating low-light conditions, and using my camera equipment to reach its maximum capabilities.

### Talk us through your favourite camera settings.

I've consistently found success in shooting in manual mode, as I believe it allows me to fully maximize the potential of my gear. However, I also make use of custom preset modes for situations where specific settings are needed unexpectedly, such as capturing a fast-flying bird. For a scenario like this, I've configured C1 with a rapid shutter speed of 1/2000 sec, Auto ISO and f/7.1, using subject detection for animals and continuous autofocus. This enables me to swiftly adapt the mode, increasing my chances of capturing the perfect shot.

### And what about the shooting techniques you use?

I appreciate both sharp, crisp images and the creative effect of motion blur. Whether it's finding the sweet spot of your lens for maximum sharpness in a photo or selecting the ideal shutter speed



for diverse scenarios, such as a lion sprinting across the field or a slow bear foraging in the forest, it's key to leverage your equipment effectively.

### You've visited so many countries, where is your favourite place to photograph wildlife?

My job has allowed me to explore numerous countries across different continents, each with its unique magic and beauty. Every place has a distinct allure, but my enthusiasm peaks in locations abundant with wildlife, such as

the tropical forests or the breathtaking landscapes of Africa. It's important to say that I appreciate the wild inhabitants in every locale, whether it's the Canadian Rocky Mountains, the Arctic, boreal forests, the epic deserts of the Middle East, the wild coast of Australia – or even the local park in town.

### What's been your most memorable wildlife sighting?

One that holds a special place in my heart is from my first visit to Africa. Kruger National Park spans an area the size of a





I always ensure I have a backup camera, spare batteries and extra memory cards. Fortunately, I haven't encountered any equipment losses or technical issues, but then I always take great care of my gear!

**Working as a cabin crew member, what does a typical month of photography look like for you?**

When I receive my monthly rota, I organize trips during my days off; that's typically how I spend my free time. Throughout my career, I have followed the work of many great photographers and have had the incredible opportunity to meet some of them during my trips. We always exchange tips, information and techniques, and networking is an essential aspect of my journey.

**Who would be your dream partner on a trip?**

I would be thrilled to have Kiri Cashell, the producer/director of the BBC's *Planet Earth III*, as a companion. Learning about the stories behind such a remarkable and epic production would be amazing. Her knowledge in the field must be truly extraordinary and inspirational to discover.

**When an animal has been photographed hundreds of times before, do you think that makes it more difficult?**

When an animal has been photographed numerous times, it doesn't diminish any of the excitement for me. That's precisely where the magic of photography lies – in the understanding that no two shots are identical. Each person has a different way of expressing art through their photography, ensuring that personal touch and uniqueness are present. For me, it's not always about photography. I prioritize living in the moment in the presence of animals crossing my way.

**What's your approach to editing?**

My goal is to achieve the most natural look possible in my photographs. Editing

**“My job has allowed me to explore numerous countries across different continents, each with its unique magic and beauty”**

country, and upon entering its gates, I felt as though I was stepping into a realm owned by the animals there. Witnessing my first wild African elephant was a moment that made me feel like a true guest in their territory. The majestic bull, an adult alpha male, emerged from the bush and posed in front of my car, almost as though welcoming me to their domain. This unforgettable moment gave me chills, and as I pulled out my camera, I captured my first portrait of an elephant.

**Is this image the one that you're most proud of?**

Having some of my photos gain recognition by BBC Earth or official Canon sites is exhilarating. However, other pictures haven't garnered as much attention, including a photo I captured of two young lions. I love its composition, the hues of the dry season, the incredible power of camouflage, and

the intimidating yet protective gaze of the older brother.

**That photo was taken using Canon's excellent RF 100-500mm telephoto lens. Have you always used Canon gear?**

Yes! I began my photo journey with Canon cameras and lenses, and I continue to use them to this day. I've always had positive experiences with its gear in terms of build quality, durability and performance. I've also found Canon cameras to be user-friendly and easy to customize. At the moment, I have a Canon EOS R7 paired with an RF 100-500mm F4.5-7.1L IS USM lens and an RF 24-70mm F2.8L IS USM lens. This zoom lens combination has a versatile range, and both consistently deliver outstanding performance and image quality.

**Have you ever lost or had any kit fail on you in the field?**



## 08 MAGIC MEETING

My very first encounter with a wild African elephant in Kruger National Park, South Africa

**Lens** Canon RF 100-500mm F4.5-7.1L IS USM

**Exposure** 1/500 sec, f/4.5, ISO800

## 09 GENTLE SLUMBER

A wild koala awakes between naps in the afternoon on Kangaroo Island, Australia

**Lens** Canon RF 100-500mm F4.5-7.1L IS USM

**Exposure** 1/80 sec, f/7.1, ISO500

## 10 STILL AND QUIET

In Monteverde National Park, I took the chance of setting a low-ISO speed while still getting a razor-sharp portrait

**Lens** Canon RF 100-500mm F4.5-7.1L IS USM

**Exposure** 1/25 sec, f/5.6, ISO640



is a crucial aspect of modern photography, though, and I approach it with the same seriousness as when I'm out in the field shooting. It's a process I find enjoyable and relaxing. I've used Lightroom for many years, and a typical edit involves adjusting exposure and white balance settings as needed, and then masking tools when I want to edit something specific in my photo. Masking not only saves a considerable amount of time but is also incredibly user-friendly.

Despite Canon JPEGs having amazing quality, I prefer shooting in C-Raw, as it gives more control over the editing, especially in terms of colours, highlights and shadows. I don't use custom presets because I typically shoot various subjects in different light conditions, and one preset may not necessarily work well for another. But for a session taken in similar conditions, I'll copy and paste the preset from the first edited picture and save a substantial amount of time.

## What are the most inspiring and most difficult parts of being a nature photographer?

When I venture into the wilderness, regardless of the location, I try to bring only the most essential items with me and consider potential survival situations. Extended waiting times and challenging weather conditions are common, so immersing myself in nature and relishing the process becomes a priority. The outcome of



## PROFILE

## Esteban Frey

Wildlife photographer

Esteban was born and raised in Caracas, Venezuela. He calls himself an explorer and adventurer, and has totted up visits to more than 50 countries over the last 20 years. He currently works as a cabin crew member for Finnair and has previously worked and lived in Spain while part of the Vueling cabin crew team. These jobs have helped him to explore different parts of the world for wildlife photography, and he plans shoots around his rota at each stop. Esteban has been a wildlife photographer for more than 11 years, and he aims to become a full-time professional in 2024.

Known for taking intimate animal portraits, Esteban regularly shares his images on Instagram, and these are accompanied by interesting facts about the subject in the hope of educating and inspiring viewers. His images have been featured by the likes of BBC Earth, Canon (United Kingdom and Ireland) and the Nature Conservancy.

[www.instagram.com/stebanfrey](https://www.instagram.com/stebanfrey)  
[www.estebanfrey.com](http://www.estebanfrey.com)

**Next issue:** Award-winning Canon travel pro and Photoshop guru Scott Kelby

nature photography isn't always guaranteed, and there are instances when I might not capture the shot I imagined or even see the animal I'd hoped to. However, I believe the true magic of wildlife photography lies in the substantial effort, preparation and patience that it requires. When you finally capture that dream photo after all the perseverance, it makes the entire experience worthwhile.

### Have you always been passionate about wildlife conservation, or has that evolved?

As mentioned earlier, I was raised in a family with a profound love of nature, and consequently, wilderness has been ingrained in my heart since childhood. Over the years, that love has transformed into a deep sense of respect for wildlife. Despite enjoying photography as a form of artistic expression, my main objective is to inspire others to learn more about wildlife and be captivated by it in the

same way that I am. I love sharing my pictures and the stories behind them, hoping that it piques people's curiosity and encourages them to explore and discover more about our planet.

### Are you optimistic about the future of wildlife conservation and nature?

Certainly! I am optimistic because I trust in humanity's knowledge and capability to discover solutions. The key lies in our collective will to overcome the challenges our planet is confronting. I always recall the words of Sir David Attenborough: "We can do it, we must do it, then there will be a future for the planet." This quote inspires me and reinforces the belief that with determination, we can work together to ensure a sustainable future for our planet. We all play a role on Earth, and every action we take brings along consequences, so we have to think about our daily decisions to try to change for a more sustainable life. 🌱

10

# PHOTOSTORIES

*Photo essays from PhotoPlus readers and professional photographers alike*

JOIN IN  
THE FUN!

One of the great things about photography is being able to share your view of the world. This month, wildlife shots take centre stage, with one photographer shooting local birds, and the other venturing underwater.

**We want your photos and stories!** For your chance to show off your images in *PhotoPlus*, email three to five high-resolution JPEGs, along with a brief synopsis – explain why you took the shots, the location, whether they're part of an ongoing project or a one-off shoot, and anything else unusual or interesting. Also include Canon EOS camera, lens and exposure details.

**Email images and info to** [photoplus@futurenet.com](mailto:photoplus@futurenet.com)

**Catch us online at**  
[www.facebook.com/photoplusmag](https://www.facebook.com/photoplusmag)  
[www.instagram.com/PhotoPlusCanonMag](https://www.instagram.com/PhotoPlusCanonMag)  
[www.twitter.com/photoplusmag](https://www.twitter.com/photoplusmag)



## PROJECT INFO

01



**NAME:** Steve Dytham

**LOCATION:** Ferry Meadows nature reserve, Peterborough

**MISSION:** To catch some winter portraits of birds at his local nature reserve

**KIT:** Canon EOS R6 and Canon RF 100-500mm F4.5-7.1L IS USM + Extender RF 1.4x

## Winter wildlife

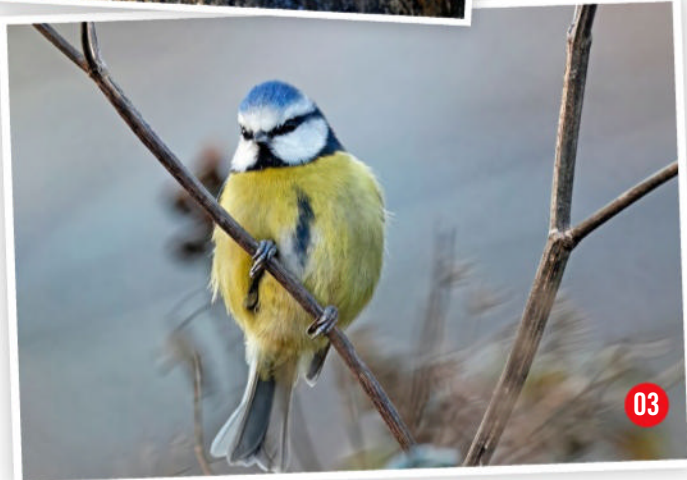
Steve headed out to take top winter wildlife portraits of birds in his garden and local nature reserve

**I am an amateur photographer, and over the past couple of years, I have developed a keen interest in wildlife and bird photography. Winter tends to be thought of a bit more negatively as a season, to stay in and enjoy the warmth.**

However, a crisp sunny winter morning provides plenty of opportunities to capture images – the air is clear, light

and very good, and you can capture the birds and other wildlife in the early frost.

I often visit local nature reserves and primarily concentrate on areas near the birdfeeder hides or waterside. At the hides, I look for the birds in the bushes and trees as they approach the birdfeeder, rather than on the feeders – this provides a far more natural-looking shot. Any frost or snow emphasizes the colours of the birds, and



<b>01 KINGFISHER</b>	A kingfisher perched on a frosty branch one winter's morning	
Lens	Canon RF 100-500mm F4.5-7.1L IS USM	Exposure 1/400 sec, f/7.1, ISO6400
<b>02 BLUE TITS ON STUMP</b>	Two blue tits perch on a frozen stump, basking in the sunlight	
Lens	Canon RF 100-500mm F4.5-7.1L IS USM + Extender RF 1.4x	Exposure 1/640 sec, f/10, ISO2000
<b>03 BLUE TIT</b>	Taken on an overcast day, the lighting and colours in this bird portrait are beautifully soft	
Lens	Canon RF 100-500mm F4.5-7.1L IS USM + Extender RF 1.4x	Exposure 1/250 sec, f/10, ISO2000
<b>04 ROBIN</b>	Steve catches the moment a winter robin takes off from its snowy perch	
Lens	Canon RF 100-500mm F4.5-7.1L IS USM + Extender RF 1.4x	Exposure 1/400 sec, f/10, ISO6400

often their feathers are more fluffed up, too.

Photographing kingfishers can be a different challenge – standing and waiting in the cold – but it's worth it to capture images of these colourful birds. The lack of leaves on the bushes actually helps me to spot the kingfishers more easily on the frosty branches.

I currently use a Canon EOS R6 with my Canon RF 100-500mm F4.5-7.1L IS USM plus an RF 1.4x Extender when I need the extra reach,

which turns my lens into a 140-700mm at the cost of one stop of light loss. This combination works well for wildlife photography – it is well balanced and quick to autofocus. My Canon mirrorless setup is also incredibly light, so I can shoot handheld and the image stabilization is fantastic, too.

My advice is to not put your camera away too soon – wrap up warm, get out there and embrace the brilliant photographic opportunities winter has to offer. 📷

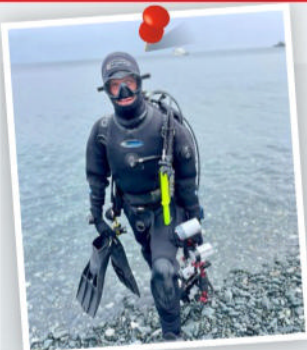
## PhotoPlus FEEDBACK

Steve has taken some wonderful winter wildlife portraits full of frost and snow that add some lovely context and variety to his portfolio. His lens of choice is a Canon RF 100-500mm F4.5-7.1L IS USM, a powerful telephoto zoom that has enabled him to get frame-filling shots of distant birds. However, its maximum aperture of f/7.1 (at 500mm) makes it difficult to achieve a shallow depth of field to blur scrappy twigs in the background. He could try and position himself so the birds are further from any distractions in the background so he can blur them more, helping the birds to stand out better in shot.



## PROJECT INFO

01



**NAME:** Brad Wakefield

**LOCATION:** Lundy Island

**MISSION:** To try something new and catch brilliant underwater seal portraits

**KIT:** Canon EOS R and EOS R6, Tokina AF 10-17mm f/3.5-4.5 AT-X 107 DX Fisheye, Canon EF 17-40mm f/4L USM, Ikelite 200DL underwater housing and Ikelite DS 51 strobes

[www.bradwakefield.com](http://www.bradwakefield.com)

# Sealing the deal

Professional wedding and magazine photographer Brad Wakefield takes his camera underwater in his spare time to learn new skills

**struggled at school but was passionate about art. I signed up to photography and something clicked – it felt like for the first time at the age of 17 I had connected with a subject.**

I went on to work at Jessops, and by the age of 21, I was working for the UK's biggest independent press agency. I'm now a freelance photographer based in the south-west, specializing in weddings, and PR magazine commissions.

In my spare time, I've been taking on a personal project,

diving underwater with my camera around the south-west of England. Our coastline is full of colourful, vibrant and interesting sea life. The seals, which are always so playful and inquisitive, were photographed at Lundy Island.

Personal welfare is paramount. While it is important to keep your camera and lenses safe, for which I use an Ikelite underwater housing, your own safety comes first, whether snorkelling or diving. It's easy to end up in a situation where you're trying to do too much,

where you'll end up exhausted and in a problematic situation. I've left the camera on the boat before when I felt it would hinder me in the water; going down without my camera allows me to work on my diving technique, too. The calmer I am in the water, the better the results I get. The biggest challenge while scuba diving is keeping an eye on your air and depth in the water. It's also important to have good buoyancy while taking photographs.

My most memorable experience was my first dive

02



03



03

as a newly qualified open water scuba diver. I went on my first dive with my scuba club, Scuba Blue. We crossed from Ilfracombe to Lundy; the crossing was long and choppy. This was my first dive in the sea and I was nervous but I had my camera and jumped in with my dive buddy. The light was dancing through the

water, bright blue warm shafts of light shone through, and this beautiful seal appeared. It's the first time I'd seen something that big underwater. It stopped for a moment and I squeezed the trigger to take this keeper. My photography career currently spans 18 years but this moment sits right at the top!

**01 BASKING IN THE LIGHT**

A grey seal stops for a quick picture as the sun shines through the clear blue sea

Lens Canon EF 17-40mm f/4L USM Exposure 1/400 sec, f/5, ISO200

**02 TIME FOR YOUR CLOSE-UP**

An inquisitive grey seal rubs its face against the camera housing

Lens Tokina AF 10-17mm f/3.5-4.5 AT-X 107 DX Fisheye Exposure 1/1000 sec, f/5, ISO500

**03 EMERGING FROM THE KELP**

A grey seal emerges from the kelp in the shallows just off Lundy Island, Devon

Lens Tokina AF 10-17mm f/3.5-4.5 AT-X 107 DX Fisheye Exposure 1/320 sec, f/7.1, ISO500

**04 CAME TO SAY HELLO**

A grey seal appears to wave and stop for a photograph

Lens Tokina AF 10-17mm f/3.5-4.5 AT-X 107 DX Fisheye Exposure 1/250 sec, f/10, ISO800



04

**PhotoPlus** FEEDBACK

Brad's sublime seal shots add some wonderful variety to his already well-established wedding and magazine photography portfolio, and serve as a brilliant reminder to not be afraid to try new things. Scuba diving and snorkelling look like wonderful hobbies to try in their own right and a great way to keep active, but throwing photography into the mix has allowed Brad to take some unique wildlife portraits and have fun with the inquisitive seals.

# MYKIT

Professional photographers reveal their top six tools of the trade they couldn't shoot without



**“I’m in love with all things dark, beautiful, creative, stylized, strange and Gothic”**

## Newo Ikkin

Professional portrait photographer Newo reveals the Canon gear and lighting equipment she can't live without when creating her fantastical photos

**M**y photography journey began on the opposite side of the lens. I began assisting photoshoots with makeup and hair, with the occasional dabble into modelling for friends as an outlet for creativity. My passion was always creating beautiful characters, pulling styling together for beautiful yet otherworldly portraits. One of my frustrations at the time was not having creative control over what was actually

being shot – living in a small town in Northern England, the powerhouses of alternative photography tended not to be based near me, apart from a few whose time I couldn't monopolize! I started shooting self-portraits to create exactly what I wanted in an image, and never looked back.

As a total magpie, I love to use a lot of metallic elements in my photography, using them in tandem with gels and atmospheric elements to make for an interesting scene. Over the past few years I've also loved creating underwater

portraiture, having partnered with underwater studio TankSpace many times.

Fast forward a decade or so, I am fortunate enough to now routinely work with some of the most amazing people in the industry to create art. My passion is primarily for moody portraiture, bold colour use, and interesting characters for my models to embody. With a particular love for corsetry and highly stylized wardrobe, every shot is intended primarily for the female gaze and to celebrate alternative culture. 🖤

WHAT DO I DO?



**Newo Ikkin**

[www.newoimagery.co.uk](http://www.newoimagery.co.uk)

**BASED** in Yorkshire, Newo has a passion for all things dark, beautiful, stylized and Gothic. She runs 1:1 workshops for both creative portfolios and editing, details for which can be found on her website above. Newo will also be speaking at The Photography & Video Show this year which runs from 16-19 March at the NEC and will be talking on the 17 March at 3pm in the Photo Studio, so be sure to grab a ticket and come along. You can also find more of her lovely work on Instagram @newo\_imagery



IN NEWO'S BAG



**01**  
**Canon EOS 60D DSLR**

WEB: [www.canon.co.uk](http://www.canon.co.uk)

**A LOT** of people are surprised when they realise I still shoot with this camera. Yes, it's old, beaten up, cheap and cheerful – but it still does exactly what I need it to do, and I don't overly worry about knocking it about while I'm working! My trusty little Canon EOS 60D comes everywhere with me, and has been responsible for most of my images to date – a testament to a hard working bit of kit.

**02**  
**Canon EF 50mm f/1.8**

WEB: [www.canon.co.uk](http://www.canon.co.uk)

**I WOULDN'T** be without this so-called 'nifty fifty'. I can get the most beautiful look with the wide f/1.8 aperture that looks so dreamy. I especially love using it for portraits and close-ups to show off the talent of makeup artists or detailed jewellery pieces. Again, this Canon kit doesn't break the bank, so it's well worth having in your bag if you haven't got one already!

**03**  
**MicroFogger MF4 Pro**

WEB: [www.levshop.co.uk](http://www.levshop.co.uk)

**THIS** tiny machine is a staple in a lot of my work. These two are mini smoke machines from the MicroFogger range. They work similar to a vape, but in reverse, meaning I can create either a beautiful haze, or targeted areas of smoke to add atmosphere to an image. These are super handy to carry around, unlike a more traditional smoke machine and more ideal for location work.

**04**  
**Jake Hicks Gel Pack**

WEB: [www.jakehicksphotography.com](http://www.jakehicksphotography.com)

**GELS** changed my photography style a lot, and my clients love more vibrant portraits. I tend to use gels on a bare studio flash, to create a very hard light and offset it slightly from the model, almost pointing towards the camera. You can get a fantastic hazy glow this way, especially when used with the smoke machines.

**05**  
**Lume Cube 2.0 LED**

WEB: [www.lumecube.com](http://www.lumecube.com)

**LUME CUBES** have been a bit of a revelation for me when considering what I could do to make a small travelling set-up that took up very little space. I often shoot from client's houses or tiny front rooms and so on, where space is at a premium. In these places, I've found the small Lume Cube a great little light – and with them also being waterproof I've also been able to use them in underwater sets.

**06**  
**Wacom Intuos5 tablet**

WEB: [www.wacom.com](http://www.wacom.com)

**WHEN** editing, I use both Capture One and Photoshop CC and my Wacom graphics tablet is essential for my post-production work. I use the Wacom Intuos 5 Touch PTH-450, which is invaluable for detail work, such as highlighting round the eye waterline, or the ridge of the brow, almost digitally 'painting' detail on to the photo to add an otherworldly feel to an otherwise simple portrait.

# 10 THINGS TO SEE AT THE PHOTOGRAPHY & VIDEO SHOW 2024



Come and see Canon, the PhotoPlus: The Canon Magazine team, the latest Canon gear, top pro photographer speakers and more at the new show!

**W**e're excited The Photography & Video Show 2024 at the NEC is coming soon – from the 16 to 19 March at the NEC in Birmingham. As well as being able to say hello to *PhotoPlus: The Canon Magazine* team on stand H404, there's loads more going on this year. There are some legendary speakers on the various

stages, the kit deals at the show on the dealer stands are some of the best you can get, and you can watch a host of live demos and inspiring talks! Plus, Canon will be there with its huge stand, where you can experience first-hand the very latest Canon EOS cameras and gear.

If you're not looking for new gear, there are loads of great Canon experts and

professional photographers speaking – and many of the sessions are free to attend. From beginner-level tips, to business-related advice for working professionals, there really is something for everyone. 📷

**See the website details bottom-right to book advance tickets and save 20%!**

## 01 Canon go big!

Canon has the biggest stand at the show again (it takes up two huge spaces across N400 and N500!), which offers an interactive experience, where you can learn new techniques on the live shooting stage, as well as pose questions to the many Canon experts on hand. You'll be able to get your hands on all the latest Canon EOS R System mirrorless cameras, play with a variety of Canon lenses, plus see small to big printers in action. Learn more at [www.canon.co.uk/the-photography-show](http://www.canon.co.uk/the-photography-show)



## 02 Win Canon EOS R6 Mk II + RF lens

There's even an exclusive Canon gear competition for the show with kit worth £3130! Enter to win a Canon EOS R6 Mark II mirrorless camera, plus Canon RF 24-105mm F4-7.1 IS STM lens. You can enter today at [www.photographyshow.com/canon-competition](http://www.photographyshow.com/canon-competition)



Comp closes 20 March 2024



## 03 Inspirational speakers

Some of the biggest names in photography will inspire you on the show's stages. Canon pros include Denise Maxwell, event photography; Emma Finch (right) on photographing the female form; Kelly Brown on maternity posing and lighting; Scott Kelby's top 20 portrait photography tips; Chris Jackson on 20 years of photographing the royal family; Sanjay Jogia, evolve or evaporate; and Tina Eisen on posing for beauty and portrait photography.



## 04 Amazing show deals

Three of the biggest dealers – WEX, London Camera Exchange and Camera World – are at the show, with some unbelievable show discounts on the very latest Canon cameras and lenses, often with further reductions thanks to Canon's cashback offers. Plus, there will be more great savings to be had on other lenses and tons of cool kit that you've been meaning to buy at the right price!



05

## Video masterclasses for everyone



As the name suggests, The Photography & Video Show isn't just about photography; there's plenty for videographers too, from movie-making masterclasses to exhibitors specializing in video production.

06

## Special subs show deal

Subscribe to *PhotoPlus: The Canon Magazine* to get yourself a free Vanguard Veo Select Backpack (worth £99.99), plus save up to 28% off the newsstand price with our special subs show offer! Come and catch up with some of the *PhotoPlus* team. See you at stand H404!



07



## Enjoy all the live demos

Many of exhibitors host their own talks and demonstrations, with brand ambassadors aplenty showcasing the latest kit and its capabilities. Learn more about your favourite brands from the experts and stick around to get more in-depth advice.

08

## Canon pro advice

There's loads on for pros at the show this year, with four days packed with tech, talks and networking to help you perfect your business. Take a look at [www.photographyshow.com/whats-on/s-pros](http://www.photographyshow.com/whats-on/s-pros) for a quick overview of what to expect. Remember, pro entry is free (subject to validation criteria).



09

## Canon's stages

Within Canon's huge stand they have stages featuring a great line-up of inspirational Canon pro photographers giving talks; such wildlife photographers, Dani Connor (right) and as Ellie Rothnie, and Nick Page, landscape photographer. See their stand for schedules, arrive early to avoid missing out. Canon Ambassadors and pros share their stories and journeys to capturing inspiring content on the Spotlight stage, while Canon experts help you get the best from your camera with a series of practical workshops in their Bitesize area.



10

## Latest photo gear and great cafés!

Try out the newest photographic gear to complement your Canon setup, from third-party manufacturers of lenses such as Sigma and Tamron, to tripods and bag brands, and more, including Manfrotto, Lowepro, Benro and many others to choose from.

Plus there's tons of choice when it comes to cafés, bars and places to grab all sort of tasty food and drinks! Take your pick, and take a rest.



**SAVE 20% OFF STANDARD ENTRY TICKETS!**  
Go to [photographyshow.com](http://photographyshow.com) and use code **PHPTPS24** to claim your discounted tickets

# CANON SCHOOL

In part 37 of our series: As technology marches on, learn how to personalize your settings for perfect results

## PhotoPlus EXPERT

MARCUS HAWKINS

PHOTO EXPERT

Marcus has been passionate about photography for more than 25 years. A former editor of our sister publication *Digital Camera*, he has written about photography and cameras for a wide range of clients, including Canon and Jessops, and uses a Canon EOS 5D Mk IV.



## Custom Functions

How to refine your camera's performance

It's fair to say that EOS digital cameras have evolved considerably since the launch of the EOS D30 in 2000. Back then, a 3.1MP APS-C CMOS sensor and three AF points were cutting edge. But even with its modest specification by today's standards, the camera performance and operation could still be fine-tuned via Custom Functions in the menu.

Today's Canon EOS cameras offer a similar set of Custom Functions, although given their additional functions and advanced performance, models such as the EOS R6 Mark II and EOS 5D Mark IV come with multi-tabbed menus of customizable adjustments.

A number of these functions are those which you'd perhaps set and forget when you first

get the camera. For example, some models have a Custom Function that allows you to change the direction of the dials as you're making adjustments when you're shooting in Av or Tv mode. While the majority of us are likely to stick with the default set-up, you can reverse the direction that the dials are turned to adjust the shutter speed or aperture.

Other Custom Functions are likely to be used more frequently. A few cameras have 'Mirror lockup' in the Custom Functions menu rather than the Shooting menu. If you're doing a lot of landscape or long lens photography where you might want to lock the mirror up before you take a shot to reduce vibrations, it's likely that you'll be dipping into the Custom Functions menu to toggle this feature on and off.



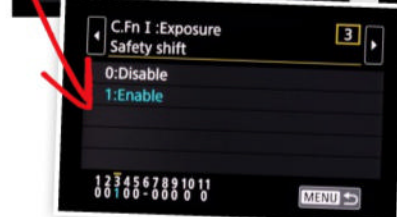
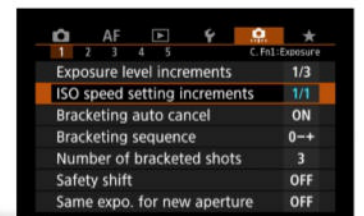
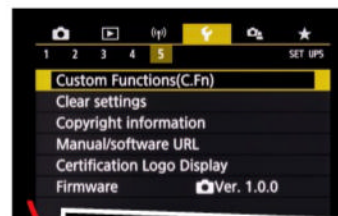
## Finding & changing the Custom Functions

THE MAJORITY of modern EOS cameras have a dedicated set of orange Custom Functions tabs in their menus, but on a few models, including the EOS 4000D and EOS 250D, you'll need to select the Custom Functions settings menu instead.

On cameras with a Custom Functions menu, any changes you

make will be indicated in blue in the menu. With other cameras, you'll have to check the Custom Functions at the bottom of the screen to see which ones are displayed with a blue '1'.

If you come unstuck, you can reset all the Custom Functions. You can do this in the final page of the Custom Functions menu or via the 'Clear all Custom Func.' in the Set-up menu.



Manual adjustments are in blue, so it's easy to see which Custom Functions might need to be reset

IT'S YOUR CALL

# Understanding how some Custom Functions work

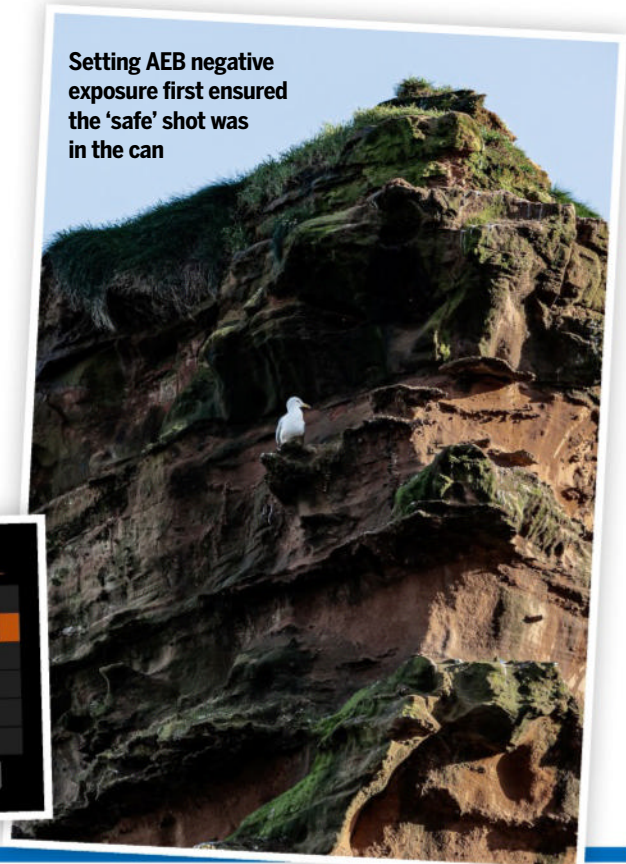
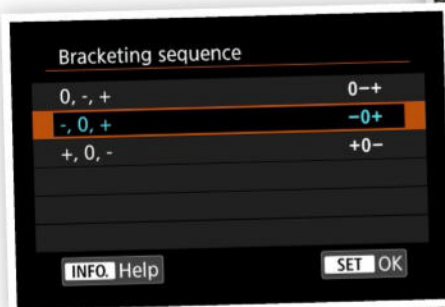
Navigate quickly to the feature you need to change

## Exposure settings

**THE CUSTOM** Functions are grouped according to the main areas of camera performance, such as Exposure, Drive, AF and Operation/Others. Exposure is the first set you'll see.

Some options are the same no matter which camera you use – such as being able to set the exposure level increments from the default 1/3 stop to 1/2 stop, for times when you don't need such fine adjustments. More advanced bodies have more detailed options, such as being able to adjust the sequence of shots taken when you use Auto Exposure Bracketing (AEB). The default here is the standard exposure, followed by the darker and then

brighter exposures. But if your scene has bright areas that are more likely to be overexposed and there's a risk that the subject may move, then you could set the darker exposure as the first shot, followed by the standard and brighter exposures (as below).



## Safety first!

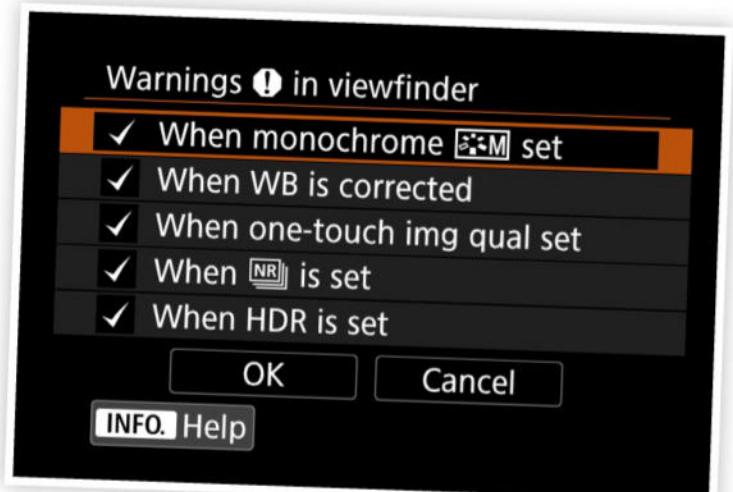
**ON SOME** entry-level EOS cameras, there's an Image section where you'll find Custom Functions that can affect the picture quality. These functions are available in the Shooting menu of other cameras, and include 'Long exposure noise reduction' and 'High ISO speed noise reduction'. Putting them in Custom Functions on a camera aimed at beginners makes sense, as they're less

likely to be changed inadvertently. There are other 'safety' features that can be enabled (or in some cases, disabled) in the Custom Functions menu. You may be able to set 'Flash synchronization speed in Av Mode' for instance, which prevents subject blur and camera shake when you're using flash in low light (at the expense of a darker background). There's also 'Safety Shift' which lets the camera adjust the aperture/shutter speed you've manually set in Aperture Priority (Av) / Shutter Priority (Tv) in order to prevent the image being too dark or bright.

## Other options

**THERE'S** a host of weird and wonderful Custom Functions available across the EOS range, a number of which you'll find in the 'Operation/Others' section (in the penultimate or final section of the Custom Functions menu). This might include 'Add cropping information' (which we look at over the page) and 'Warnings in viewfinder' – a useful option for DSLR users that can display an alert in the optical viewfinder when the camera has a setting dialled in that you might have overlooked, such as the

Monochrome Picture Style or Spot metering. If you're a user of compact 'gear-type' STM lenses, then you might want to look at 'Retract lens on power off'. It's enabled by default, retracting the lens when you switch the camera off in order to prevent the lens gear mechanism being damaged if you bump the lens while it's extended. It does this even if you've set the lens to MF. So, if you've manually pre-focused the lens at a specific focus distance and switch the camera off to save battery power, you'll lose your focus setting. Disabling this Custom Function will prevent this happening though.



# Customizing autofocus

Tailor the AF response to suit the subject

**W**hen it comes to fine-tuning the autofocus functions, EOS bodies offer a comprehensive level of customization – although where you enable and disable options in the menu depends on your camera. Some have a dedicated ‘Autofocus’ section in the Custom Functions menu, while others have a similar set of customization options available in their dedicated ‘AF’ menu.

To change the subject-tracking sensitivity of the AF system on the EOS 90D, for example, you need to head for ‘C.Fn II-1: Tracking sensitivity’ in the Custom Functions menu. But you’ll find the same option available under the AF Configuration Tool in the EOS 5D Mark IV’s AF menu.

The advanced autofocus customization options aren’t something to explore on the spur of the moment, particularly if you’re using one

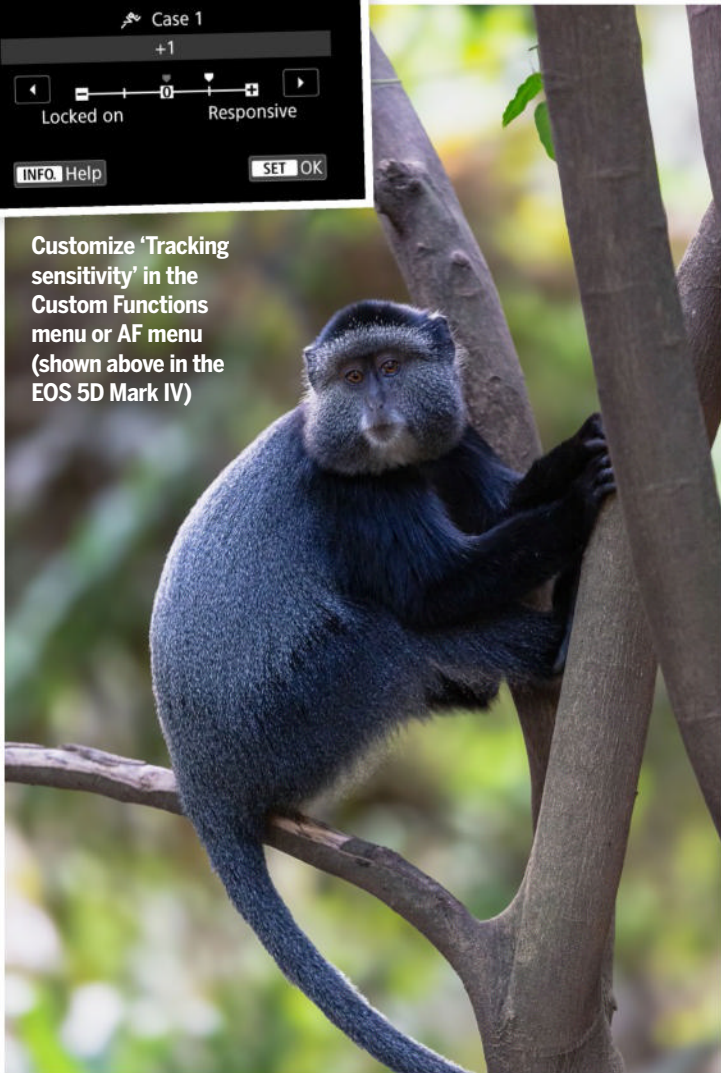
of the more high-spec EOS cameras. Set aside time to experiment with the different custom settings. You may find that you prefer different set-ups for different subjects, in which case you can assign these to different Custom Modes on the camera, if yours offers this function.

Some good options, if available, are ‘Tracing sensitivity’, ‘Acceleration/ deceleration tracking’ and ‘AF point auto switching’ – all of which are now more commonly found in the ‘AF config. tool’ in the AF menu.

Some photographers like to remove AF activation from the shutter release button and instead assign it to either the AF-ON or AE lock button (eg back button focusing) via the Custom Function menu (see below). This set-up allows you to stop the autofocus when a moving subject is stationary (by taking your thumb off AF-ON or AE Lock) while continuing to take photos.



Customize ‘Tracking sensitivity’ in the Custom Functions menu or AF menu (shown above in the EOS 5D Mark IV)



# Personalize your controls

Customize buttons and dials for your photo workflow

**ONE OF THE** joys of using a Canon EOS camera is that the design and placement of the controls makes them intuitive to use. There’s a lot of consistency from EOS camera body to body too, making it easy to get up and running with a new camera, or to have a different back-up camera to your main one.

While many photographers stick with the standard control set-up that the camera ships from the factory with, there are some buttons where it’s worth changing the default setting to one that’s more suited to the way you like to shoot.

For example, the SET button may be disabled when you first use the

camera (although again, it does depend which model you’re using). But you can assign a useful function such as switching between One-Shot AF and Servo AF on the fly, or depth-of-field preview – a handy option for those cameras that don’t have a depth-of-field button. You might also have the option of adding a shortcut to image quality or Picture Style, if you need quick access to these types of functions (I rarely do).

You can customise specific buttons and dials via the Custom Functions menu. Some cameras also have a ‘Custom Controls’ shortcut on the Quick Control screen. Canon’s RF and RF-S lenses have a customizable



control ring, to which you can assign different functions too. You can set this up so that you have to hold a button down while you rotate the ring in order to make exposure adjustments, preventing accidental adjustments.



MAKING IT FIT

3:2

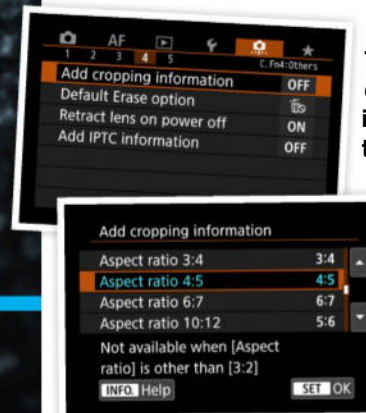
4:5

# Creative cropping

Mark up your images with an alternative aspect ratio

**CUSTOM** Functions can save you time when you process your images. If you intend to use your images on Instagram, say, then you can select the 4:5 aspect ratio in the 'Add cropping information' Custom Function. Vertical lines will then be displayed during Live View shooting – or in the viewfinder of a mirrorless EOS camera.

You can't set an aspect ratio using this Custom Function if you've already manually set one using 'Aspect ratio' in the red Shooting menu – or vice versa. Although you can use either option to set an aspect ratio when you're shooting RAW files or JPEGs, the difference is that, unlike 'Aspect ratio', the 'Add cropping information' Custom Function doesn't permanently crop a JPEG. If you open the JPEG in Canon's Digital Photo Professional, you'll see the crop highlighted, but you can choose to revert to the original 3:2 aspect ratio or any other crop. This isn't always the case with other editing software; if you open the same JPEG in Lightroom for example, the cropping information won't be recognized and the image will be shown in the default 3:2 aspect ratio.



The only time you can add cropping information via this Custom

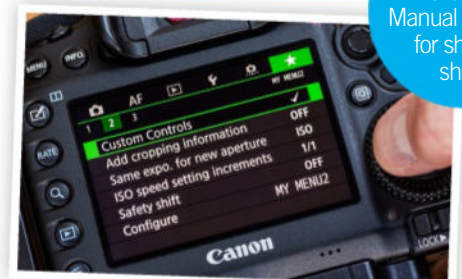
Function is when 'Aspect ratio' in the Shooting menu is set to the default 3:2

## School tip Make your own custom menu

Make it easier to get to the Custom Functions you use most often

**IF YOU'RE** finding it too slow to scroll through the EOS camera menus and find a favourite Custom Function, why not create your own shortcut to the good stuff? You can add Custom Functions to your camera's green My Menu tabs in the same way that you do with other menu options. It's

possible to mix them in with other frequently used functions, such as 'Format card' or 'Mirror lockup', or create a standalone My Menu tab of six Custom Functions you change often. You can even rename the tab – from 'MY MENU1', say, to 'CUSTOM FUNC', to make it even easier to get find.



You can reorder the way the list of Custom Functions in My Menu and create multiple tabs

**PART 38**  
Next issue:  
Manual focusing  
for sharper  
shots

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## PhotoPlus EXPERT

**BRIAN WORLEY**

CANON PRO

Brian is a freelance photographer and photo tutor, based in Oxfordshire. He has unrivalled EOS camera knowledge, after working for Canon for over 15 years, and is on hand to answer all your EOS and photographic queries



### Why does changing flash settings on my Speedlite transmitter not instantly show on the remote Speedlite?

Amanda Fielden, Wolverhampton

**BRIAN SAYS...** This is a common confusion, and has been noticed more frequently since some independent brands have adopted an alternative method in which the setting on the transmitter is instantly reflected on the remote flash. Canon's wireless flash system sends the required settings for mode, power and sync just before the photo is captured. It is also sent when the test button is pressed on the

transmitter. This is because the system is designed for the possibility of multiple photographers with transmitters, or sender units, working with the same remote flashes. Since the system works the same for optical and radio wireless triggering, it means that when changes are made on the sender, there's no need for an optical signal from the on-camera sender to flash each time a change is made.



Changes to off-camera flash settings on the transmitter are sent to receivers when the shutter or test button is pressed



The EOS R6 is only able to track detected subjects with face detection and tracking, or zone AF methods

### I have an EOS R6 that won't track a bird in flight when I use the expand AF area AF method – what am I doing wrong?

Bobby Kilner, Lincoln

**BRIAN SAYS...** The EOS R6 and EOS R5 only do subject tracking when the AF method is Face and tracking or one of the three Zone AF options. All the other AF methods perform similar to a DSLR, which doesn't do subject identification and detection.

If you set the camera to Zone AF, it identifies the bird if it is within the boundary of the zone, and tracks it inside the zone. If the bird moves outside the zone boundary, the camera can't track it, and you need to reposition the zone over the bird. With Face Detection and

tracking, the camera detects and follows the bird across almost the whole of the frame. Additionally, if Eye Detection is enabled, the camera tries to identify and track the subject's eye.

The EOS RP tracks faces, but you must use the correct AF area, Face Detection and tracking, or Zone AF for this to work. Eye Detection only works when Face Detection and tracking is selected; one-point AF and AF with expansion settings are not so intelligent and don't identify a face or move the AF point position to track it.



## INDOOR ISO SETTINGS

# Low-light interior photography

Optimize your camera's Auto ISO settings for interior building photography

In-body and lens stabilization enable slow shutter speeds to be used for interior shots without a tripod



**Ask Brian!**  
Confused with your Canon camera? Send your questions to [EOSOS@futurenet.com](mailto:EOSOS@futurenet.com)

Photographing building interiors often requires a tripod, but improved high ISO performance and image stabilization enables photographers to shoot when tripods are not permitted. With Auto ISO selected, camera programming aims to ensure that shots are shake-free. Using conventional photography rules of thumb, the camera attempts to keep the shutter speed to at least the reciprocal of the focal length. So, for a 50mm lens, this means a 1/50 sec shutter speed with Program or Aperture

Priority modes. However several EOS R-series cameras have in-body stabilization that enables slower speeds to be employed, yet achieve successful images as long as the subject is still. If a lens has image stabilization, slower shutter speeds can also be used.

There are two ways to affect the ISO speed selected by the camera; one applies to all modes, the other is specific to Program and Aperture Priority. There is a separate range of allowable ISO values when using Auto ISO – by default for the EOS R5, the



Minimum shutter speed settings for Auto ISO can be intelligently linked to focal length or a manually chosen limit

range is ISO100 to ISO12,800. If you find images at ISO12,800 are too noisy, reduce the upper limit, as this forces the camera to select slower speeds in low light. If you mainly shoot in Aperture Priority or Program mode, there is a more intelligent option that varies the minimum shutter speed based on the focal length of your lens. Camera settings allow for slower shutter speeds that are ideal for building interiors when using a lens with IS or IBIS, or faster shutter speeds that are more effective when the subject itself is moving.

Both settings are sub-menus under the ISO speed settings. Auto Range limits the range of Auto ISO for any mode, while Minimum Shutter Speed applies when using Aperture Priority and Program modes. Select Manual and choose the slowest shutter speed you are confident to handhold and still get sharp shots. I've seen sharp shots using a 40mm lens at one-second exposures thanks to IBIS. If you have a wide-angle zoom, Auto is more beneficial. Turn the main dial or use the on-screen buttons to set slower minimum speeds. If Auto(-2) is selected and a 15mm lens is used, the minimum shutter speed is 2-stops less than normal, resulting in 1/4 sec and a corresponding 2-stops less ISO selection.



Canon's Speedlite EL-5 custom modes speed up changing flash settings and can be linked with camera custom modes (see our EL-5 test on p84)

## What are the custom modes C1/C2/C3 used for on the Speedlite EL-5?

Steve Allen, Tipton

**BRIAN SAYS...** They are similar to the custom modes on many EOS cameras. As a Speedlite like the EL-5 has a lot of functionality, custom modes simplify switching from one setup to another. A wedding photographer can set up the Speedlite EL-5 to control off-camera lights around a dance floor, but easily switch to on-camera bounce flash by changing mode, saving multiple button presses on the EL-5. There is also an option to link the custom flash modes to the camera's custom modes, so selecting C1 on the camera mode dial switches the Speedlite EL-5 to C1 mode, too – using P, Tv and Av, M modes doesn't change flash settings, though.

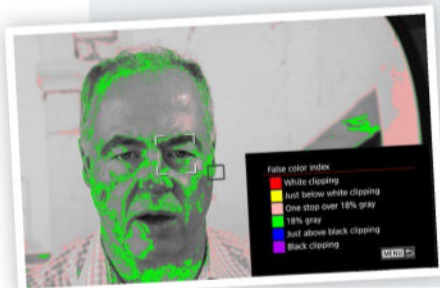
## How do you use false colour filters to judge exposure on the EOS R8?

Ollie Milsom, Menai Bridge

**BRIAN SAYS...** False colour filters overlay specific colours on an image where those colours correspond to a brightness level. They are similar but more advanced than the zebra displays, and are only available when shooting video. The camera has six defined brightness levels and corresponding colours to represent them. Using the false colour filter, the image is grey where the brightness doesn't match one of the defined levels, and coloured according to the reference list where it does.

Using false colour helps to set the correct exposure, as there is usually less exposure flexibility if shooting video. Video shooters try to set the exposure so that red (highlight clipping) and purple (black clipping) do not appear. It helps to use a custom button to quickly switch false colour filtering on and off as a simple exposure check.

**A false colour filter displays coloured tones overlaid on areas corresponding to the specific brightness level**



## Is there a battery grip for the EOS R7?

Kirsty Oxenford, Southend

### BRIAN SAYS...

Not from Canon – grips from independent vendors exist but they lack the camera controls found on Canon battery grips.

## The remaining pictures counter does not update...

Nick Sands, Chigwell

### BRIAN SAYS...

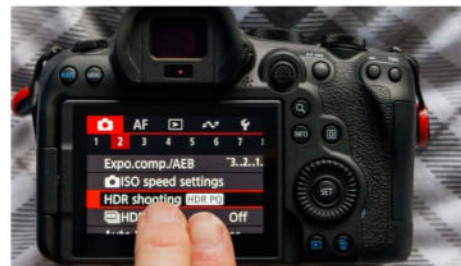
Cameras work out the number of remaining pictures based on the expected size of an image with current settings. After a picture is taken, the count may change depending on the card and file size.

## Why won't my phone charger charge my camera?

Andy Hill, Wakefield

### BRIAN SAYS...

Your camera needs more than a phone charger's 15W. Canon has a PD-E1 USB power adapter, but you can use a laptop charger if it has more than 65W output and you use a USB-C cable with suitable rating.



With UI magnification enabled, tap the LCD screen with two fingers to double menu size

## Is there dioptre correction for my LCD screen, as I need to swap glasses to read menus?

Jane Pinkerton, Southampton

**BRIAN SAYS...** There's not a dioptre correction as such for the LCD, but most EOS R-series cameras have a function to magnify the camera menus. Once you activate UI magnification, tap on the LCD with two fingers to magnify the screen to double its normal size. A single finger can then be used to drag the screen around. Settings can be changed while the display is magnified.



Both the EOS R6 and the EOS R6 Mark II can be used with the remote release RS60-E3

## I've bought a new EOS R6; which remote releases are compatible with it?

Paul Atkinson, Paignton

**BRIAN SAYS...** As there are two EOS R6s – the original and the newer EOS R6 Mark II – this question has two different answers. Both camera models can be used with the cable-connected RS60-E3 remote switch, and the BR-E1 Bluetooth remote. Additionally, the original EOS R6 can also be remotely triggered using the RC-6 infrared remote release. To use the RC-6, set the camera to 2-sec or 10-sec Self-timer drive modes. Cabled and Bluetooth releases work with any drive mode.

## DUAL PIXEL RAW

## My camera has Dual Pixel RAW, but I've never used it and wondered what it is, and when would it be useful?

Chester Pickering, Farnham

**BRIAN SAYS...** Canon uses two photo diodes within each pixel as part of the dual-pixel AF system, and when Dual Pixel RAW is enabled, the light level measured by each photo diode is saved in the RAW image. This means that such images are twice as large and can limit the maximum shooting rate, too.

When a scene is viewed from two slightly different perspectives, it is



**In-camera portrait relighting allows adjustment of the size and direction of the light on the subject's face**

slightly different – you can see this by looking at a scene with your left eye and then right eye individually. Dual Pixel RAW is similar and Canon's Digital Photo Professional software can leverage the two viewpoints to perform corrections to an image: image microadjustment, bokeh shift and ghosting reduction. The EOS R5 and EOS R6 Mark II also have in-camera Dual Pixel RAW processing functions to adjust background clarity and perform portrait relighting.

Image microadjustment slightly repositions the point of maximum sharpness in an image taken with a fast lens at maximum aperture, but the shift is minimal. Bokeh shift moves the bokeh in front of and behind the subject. Ghosting reduction can reduce reflections when shooting through glass.

In-camera background clarity brings more detail out of backgrounds; this might be needed when a wide aperture was used to take the shot but some detail needs to be recovered from the background. Perhaps more interesting is



**A Dual Pixel RAW image with in-camera background clarity adjustment**

portrait relighting, where it is possible to move the apparent light source around a detected face in the frame to change how it appears to be lit. It is also possible to change the apparent size of the light source to even out the results. Edited in camera images are saved as new JPEGs.

## RATE MY PHOTO

### Otsukimi

**JIM PATTERSON, ARIZONA, SAYS...** I was at the Japanese Friendship Garden in Phoenix, Arizona. The event was called Otsukimi, or gaze at the moon, which is an ancient tradition in Japan. This image was two blended together. Both were hand-held and I pushed the ISO on my EOS R6 Mark II up to ISO25,600 for the main shot of the gardens. The picture of the moon was captured using the 'looney 11' settings of 1/100 sec, f/11, ISO100, and I used the Canon RF 800mm to make the moon much larger. I 'lassoed' the moon in Photoshop and moved it.

**BRIAN SAYS...** I was intrigued by your photo and it does convey the sense of the event, even though I felt that it was a composite image. I think moving the moon has put it in the optimum place compositionally. But the bright green elements at the bottom of the frame



drag my attention away, and I would suggest cropping them from the image along with some of the less interesting section on the left. Even then, I'm still left with the competition between the bright waterfall on the left and the

dominant moon on the right. I wonder if you could have tried HDR or exposure bracketing to capture the scene with more details from the shadows, and tame the highlights on the rocks and waterfall to balance the two exposures.

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## SPECIFICATIONS

<b>Max power Guide number (ISO100)</b>	metres G <sub>n</sub> 60 (200mm)
<b>BOUNCE (DEGREES)</b>	-7 to 120 degrees
<b>SWIVEL (LEFT/RIGHT)</b>	180 / 180
<b>ZOOM RANGE:</b>	24-200mm
<b>FLASH EXPOSURE COMPENSATION</b>	+/-3EV
<b>MANUAL POWER SETTINGS</b>	1/1 to 1/1024
<b>ADDITIONAL FLASH MODES</b>	HSS, RC, Strobe
<b>DIMENSIONS (WxHxD)</b>	80x140x123mm
<b>WEIGHT (INCLUDING BATTERY)</b>	606g

## CANON Speedlite EL-5

With a touch of gold, it's the first Speedlite to feature Canon's new 'multi-function foot' **£499/\$399**

**T**his new Speedlite shoehorns most of the features of the flagship Speedlite EL-1 into a more lightweight build. It runs on the same Canon LP-EL rechargeable Li-ion battery, boosting stamina and recycling speed between flashes, but costs less than half as much to buy.

The EL-5 is the first Canon Speedlite to feature the new 21-pin 'multi-function foot' which takes full advantage of the companion multi-function shoe built into most of the latest EOS R System cameras, including the EOS R3, R6 Mark II, R7, R8, R10 and R50 (but not the EOS R100). However, without any of the conventional array of connection pins in the foot, it cannot be used in the hotshoe of other Canon cameras, whether they're EOS DSLRs or M-system and R-system mirrorless bodies.

### Key features

Dedicated functions for compatible Canon EOS R-system cameras include E-TTL (Electronic-Through The Lens) flash metering and a full range of flash modes, from front and rear curtain flash options, through HSS (High Speed Sync), to programmable strobe, firing the flash in bursts at frequencies from 1Hz to 500Hz. There is a full range of bounce and swivel, from

There's a gold-plated 21-pin multi-function connector, but no regular hot-shoe pins

The EL-5 packs most of the features of the flagship EL-1 into a more compact build

-7 degrees (slightly downward) to 120 degrees (slightly rear-facing) vertical bounce, plus full 180-degree lateral swivel to both the left and the right. The automatic, motorized zoom range is similarly generous, stretching from 24-200mm in full-frame terms, with auto-sensing for APS-C format cameras. For extra wide-angle coverage, there's the usual flip-down 14mm diffusion panel built into the flash tube, as well as a catchlight reflector bounce card.

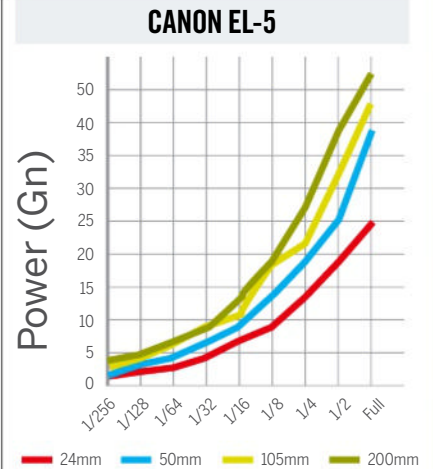
Mirrorless cameras can't use the red AF-assist lamps featured in conventional flashguns, so the EL-5's secondary dual LED lamp is a useful feature. With five power levels, you can use it for short-range stills and video, as well as for modelling use to prejudge the effect of flash and, naturally, for AF-assist, where it has a range of up to 10m.

Frustratingly, the EL-5 itself is sold without a charger for its Li-ion battery. It's not a major problem if you have an EOS R6 Mark II or R7 camera, as you can charge the flashgun's battery using your camera's charger, but if you have an EOS R3, R8, R10 or R50, the optional LC-E6E battery charger costs around £44/\$53.

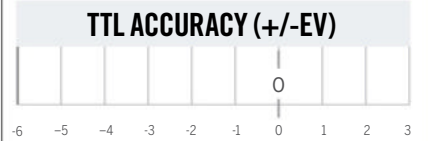
### Build and handling

The construction feels mostly durable and includes weatherseals, with a shroud on the mounting foot. We're less convinced about the durability of the mounting foot itself. Although most of the foot is metal, the 21-pin connector that extends at its front is made from plastic, and the tiny gold-plated

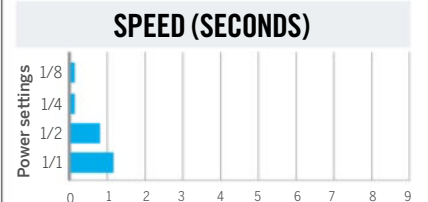




Maximum power output fell slightly short of the Canon Speedlite EL-1 in our tests, but is still very respectable, edging ahead of many Gn 60 rating flashguns



Canon's own-brand Speedlites are renowned for having very accurate and consistent E-TTL flash metering



Recycle speeds are pretty much instant throughout most of the flash power range, at 0.8 seconds after a 1/2 power flash and 1.2 seconds after a full-power

**PhotoPlus**VERDICT

**THIS SPEEDLITE** EL-5 certainly isn't lacking in power and versatility. It has a powerful maximum output, a full-range of advanced flash modes, a secondary twin LED lamp and wireless RF transmitter and receiver connectivity, and is powered by a Li-ion battery. However, its 21 gold-plated connection pins limit its compatibility to just a few of the latest EOS R System cameras.

- FEATURES** ★★★★★
- BUILD & HANDLING** ★★★★★
- PERFORMANCE** ★★★★★
- VALUE** ★★★★★
- OVERALL** ★★★★★

**“As expected E-TTL flash metering proved consistently accurate in all of our tests”**

Generous power output competes with daylight and the Li-ion battery enables fast recycling speeds

our tests, despite both flashguns having the same maximum Gn (Guide number) rating. Unlike the active cooling system of the EL-1, the EL-5 has a passive cooling system, but this still enables bursts of up to 350 full-power flashes. As expected E-TTL flash metering proved consistently accurate in all of our tests.

There's no input socket for an external battery pack, nor a PC sync terminal, so connectivity is rather limited in these respects. An upside for connectivity is that the EL-5 is compatible with the Canon Camera Connect app, enabling setting adjustments from a smartphone. 📱



Handling really is a bit of a mixed bag. The info screen is very clear but the joystick-style controller is fiddly

pins themselves look exposed and fragile. Indeed, the flashgun is supplied with a heavy-duty slip-on cover for the shoe, which you wouldn't get (or need) with a conventional flashgun shoe.

Handling is, again, mostly good. The control panel is clearly labelled, intuitive and benefits from a high-quality information screen. Our only complaint is that the small joystick-action controller at the centre of the rear dial feels fiddly.

We'd have expected that you'd be able to press the top, bottom or either side of the rotary dial to get at the relative functions but this isn't the case. Selection relies solely on moving the central button in the relevant direction, while being careful not to press it in accidentally. Wireless master and slave modes work via 2.4GHz radio frequency connectivity, when using other Canon RF Speedlites and triggers, but the flashgun doesn't have any infrared linking, so can't link to non-RF Speedlites.

**Performance**

True to its claims, we found that recycle speeds based on the Li-ion battery were very fast, and in fact virtually instantaneous at output settings from the minimum 1/1024 up to 1/4 of maximum power. They slowed to a still quick 0.8 seconds at 1/2 power output and 1.2 seconds for full-power flashes. That's still about twice as fast as you'd normally get from flashguns running on four Ni-MH AA batteries. Maximum power itself is very respectable but fell slightly short of the Canon Speedlite EL-1 in

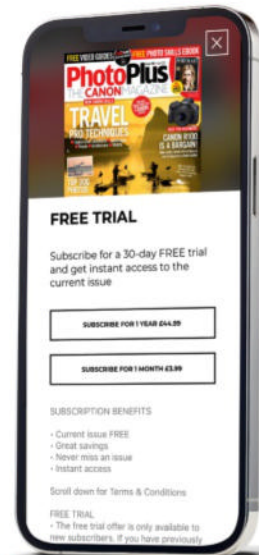
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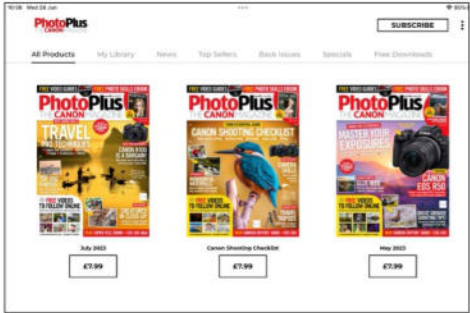
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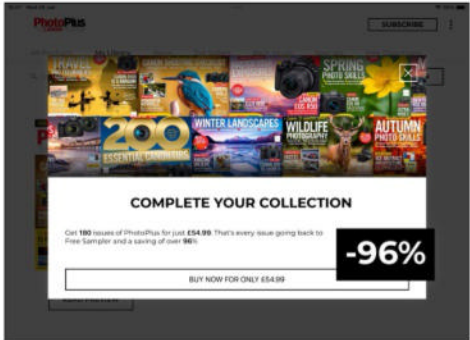
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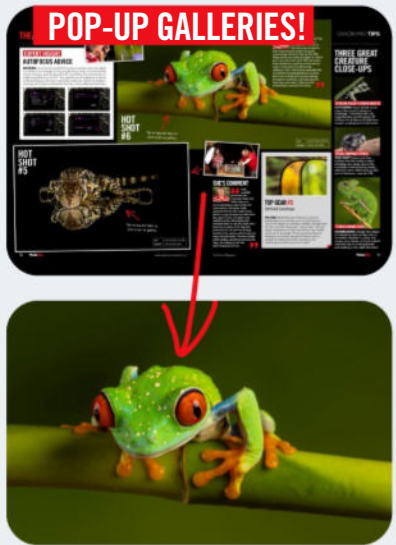
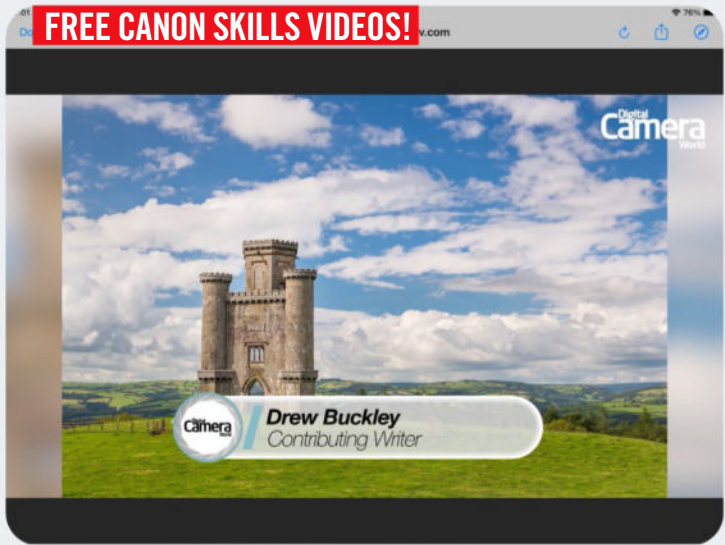


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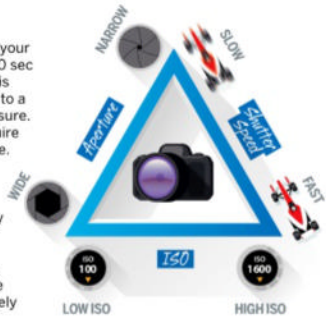


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**time**  
 ation blur into moving water in your set your shutter speed to 1/30 sec ht will enter your camera at this speed, so adjust your aperture to a ompensate for a correct exposure. l below 1/60 sec will likely require r support to stop camera shake.

**ire triangle**  
 the exposure triangle is the key l on your Canon camera and toghny to the next level. By relationship between aperture, and ISO, you'll be able to create perfectly exposed and creatively e the time to learn about the le and how one setting affects the amazed at how quickly your our images will benefit.



Learn the exposure triangle to master the roles of aperture, shutter speed and ISO settings – and you won't look back

Note: This PhotoPlus app is only available via the App store for iPad and iPhone.



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STM  
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STM  
£479/\$499

Canon RF 50mm  
F1.8 STM  
£199/\$199

Canon RF 50mm  
F1.2L USM  
£2449/\$2299

Canon RF 85mm  
F2 IS Macro STM  
£619/\$599

Canon RF 85mm  
F1.2L USM  
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Canon RF 600mm  
F11 IS STM  
£829/\$799



# RF PRIME LENSES

*Here's our pick of the finest Canon prime lenses for EOS R System cameras, along with a few best buys for DSLRs, all fully tested and rated*



**T**here's been a lot of talk of trinity wide-angle, standard and telephoto zoom lenses. Indeed, we recently ran a Super Test of these RF lenses and more budget-friendly alternatives in issue 210. Naturally, zoom lenses have a lot going for them in terms of convenience, enabling you to change perspective with your wrist instead of your feet. But we know plenty of photographers who prefer the relatively compact and lightweight build of prime lenses, as well as their faster aperture ratings in most cases. And we often count ourselves in that group.

This month, we're focusing on Canon EOS R System prime lenses. They're not necessarily expensive to buy, and some of them are great value for money. We're kicking off with the ultra-wide-angle Canon RF 16mm F2.8 STM and working our way through to the super-telephoto Canon RF 600mm F11 IS STM. There's plenty on our hit list for everything from architectural, landscape and astrophotography, through walkabout shooting, portraiture and still life, to action, sports and wildlife photography. Buckle up!

And to make sure nobody's left out, we're also highlighting the best-buy prime lenses for DSLRs. Again, there are superb bargains to be had, so much so that they're viable options for harnessing to an EOS R System camera via a mount adapter. So, let's get started...

# CANON RF 16mm F2.8 STM **£299/\$299**

Great for a night out as well as a day out, this lens is ideal for landscapes and even astrophotography

**C**ameras such as the EOS RP and R8 are wonderfully compact and lightweight for full-frame bodies. The same can't be said of many RF lenses, but the RF 16mm redresses the balance, with its featherweight 69x40mm, 165g construction. That's astonishing, given its ultra-wide-angle 16mm focal length and nippy f/2.8 aperture for a lens with such an expansive field of view.

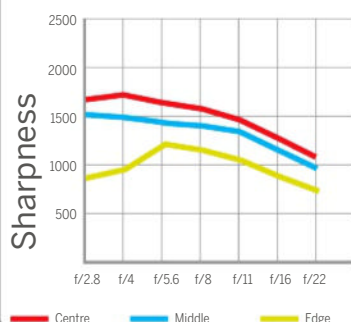
Stepping motor-based autofocus is near-silent and combines rapid performance for stills with smooth transitions for movie capture. With a minimum focus distance of just 0.13m, you can get in really close and exaggerate perspective effects, making full use of the short focal length. To infinity and beyond, so to speak, the lens is also great for astrophotography.

There's no separate customizable control ring, but the manual focus ring can take on alternative duties

in autofocus mode. Build quality feels good but there are no weather seals. Typical of non-L-series Canon lenses, the hood is sold separately, but is well worth having to reduce ghosting and flare.

### Performance

Sharpness across most of the frame is very good when shooting wide open but it pays to stop down to between f/5.6 and f/11 if you want to maximize sharpness out to the edges and corners. Barrel distortion is so appalling that uncorrected images have a fish-eye look, but many lenses for mirrorless cameras rely on in-camera corrections.



### FEATURES

- 01** Canon's renowned Super Spectra Coating reduces ghosting and flare.
- 02** The EW-65C hood costs £35/\$40 and fits to the front bayonet mount.
- 03** The electronically-coupled focus ring works smoothly for precise adjustments.
- 04** A Control/Focus switch enables the focus ring to take on other functions.
- 05** No weather seals but there is a metal mounting plate.

### VERDICT

**FEATURES**  
★★★★☆

**BUILD & HANDLING**  
★★★★★

**PERFORMANCE**  
★★★★★

**VALUE**  
★★★★★

**OVERALL**  
★★★★★

## HOW WE TEST

We combine real-world shooting results with rigorous lab testing to arrive at our overall ratings



**T**o test real-world performance, we use lenses in all sorts of lighting conditions, for indoor and outdoor shooting scenarios. We check for good build quality and handling, smooth and precise operation of all controls, and we test the speed and accuracy of autofocus.

We typically test full-frame compatible EF lenses on a range of full-frame and APS-C format bodies, whereas EF-S lenses that are designed specifically for APS-C format bodies are tested just on cameras like the EOS 90D and 7D Mark II. EF-M, RF and RF-S

lenses are tested on respective EOS M and EOS R system bodies. In-camera corrections for chromatic aberrations, distortion and peripheral illumination are disabled throughout lab testing to better reveal the true optical performance of each lens.

In our lab, we test lenses under controlled conditions, using the Imatest Master and DxO Analyser suites. Photos of test charts are taken across the range of apertures and zoom settings (where applicable), then analysed for sharpness, distortion and chromatic aberrations (colour fringing).

# CANON RF 24mm F1.8 MACRO IS STM £669/\$599

It's pretty pricey but this lens works really well with both full-frame and APS-C R System cameras

Considering this gives the same field of view as a 24-70mm or 24-105mm zoom at their shortest focal length, why would you bother? Well, for walkabout and travel photography, it's relatively compact and lightweight at 74x63mm and 270g. Secondly, it has a much faster aperture rating of f/1.8, enabling quicker shutter speeds in low light for freezing motion, as well as delivering a much tighter depth of field for close-ups.

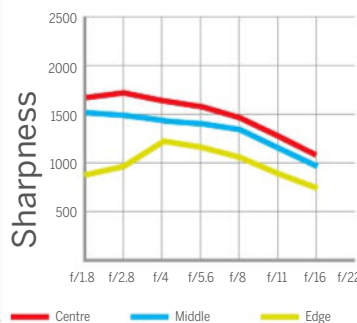
Speaking of close-ups, the lens focuses right down to just 0.14m (from the camera's image sensor rather than the front of the lens), so you really can get up close and personal. As with the RF 35mm and RF 85mm F2 lenses, that equates to 0.5x macro magnification.

Not just a good choice for full-frame R System cameras, it's also great for APS-C bodies such as the EOS R50 and R7, where it gives an effective 38.5mm focal length. In practice, that falls between 35mm and 50mm lenses in

full-frame terms, giving a very natural perspective. The 0.5x macro magnification is also effectively boosted by a factor of 1.6x with APS-C cameras, to 0.8x life size.

### Performance

Centre sharpness is excellent, even when shooting wide open at f/1.8, and the extreme edges and corners of the frame hit their stride at f/2.8. Autofocus is quick for stills and smooth for video, and the image stabilizer lives up to its 5-stop billing. The only caveat in terms of performance is that, like many recent lenses, it relies heavily on in-camera correction for distortion.



### FEATURES

- 01 The EW-65B hood is a pricey extra at £49/\$50.
- 02 The 5-stop optical stabilizer gives up to 6.5-stop performance with stabilized bodies.
- 03 The diminutive lens has a 52mm filter attachment thread.
- 04 Focus ring can be assigned functions such as aperture, ISO and exposure compensation.
- 05 Durable metal mounting plate but no weather seals.

### VERDICT

**FEATURES**  
★★★★★

**BUILD & HANDLING**  
★★★★★

**PERFORMANCE**  
★★★★★

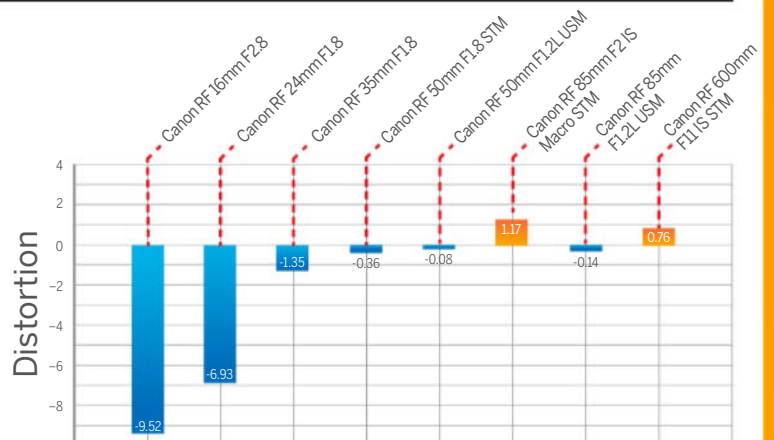
**VALUE**  
★★★★★

**OVERALL**  
★★★★★

## DISTORTION

A couple have heavy distortion but it's no cause for alarm

Typical of recently designed, relatively compact and lightweight prime as well as zoom lenses from most manufacturers, some Canon RF lenses rely entirely on automatic in-camera correction for distortion. Indeed, the correction can't be disabled in camera menus. Our lab tests reveal the extent of distortion with no correction, which is extreme in the case of the RF 16mm and RF 24mm lenses in the group. Even so, in-camera correction, which is automatically applied to JPEGs and tagged in RAW files, is extremely effective, so it's not a problem in practical terms.



Negative results show barrel distortion, positive indicates pincushion

# CANON RF 35mm F1.8 IS MACRO STM

£479/\$499

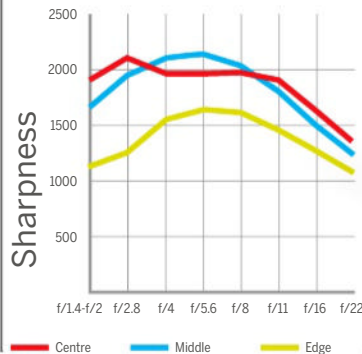
If you thought that prime lenses lacked versatility, this macro master with IS will change your mind



enables adjustment of aperture, shutter speed, ISO and exposure compensation.

### Performance

Image quality is stellar. The lens is super-sharp across the whole frame and, although vignetting is a bit noticeable at f/1.8, it mostly disappears when narrowing the aperture to f/2. The small amounts of lateral chromatic aberration and barrel distortion can be fully corrected in-camera. Meanwhile, the hybrid image stabilizer works really well for extreme close-ups as well as general shooting. A great lens that works brilliantly.



**A** key attraction of a full-frame mirrorless camera is that it enables optimum image quality in a relatively compact and lightweight package. The RF 35mm follows suit with slimline dimensions and a weight of just 305g.

As usual for lenses with stepping motor autofocus, there's no focus distance scale or depth of field markings, which are sometimes preferred for manual zone focusing. However, a distance scale, focus peaking and focus guide options are all available in the shooting displays of Canon R System bodies. Indeed, autofocus and manual focusing both work brilliantly when using these cameras' electronic viewfinders or vari-angle rear screens.

Further highlights include a very short minimum focus distance that enables 0.5x macro magnification and a 5-stop hybrid image stabilizer that's great for regular shots and close-ups. An additional, customizable control ring

### FEATURES

- 01 It's not an L-series lens and the EW-52 is sold separately, at £25/\$42.
- 02 Macro credentials include a front-end mount for Canon's macro Ring Lite and Twin Lite systems.
- 03 Super Spectra Coating reduces ghosting and flare.
- 04 The customizable control ring enables direct adjustment of various parameters.
- 05 The manual focus ring is electronically coupled.

### VERDICT

**FEATURES** ★★★★★

**BUILD & HANDLING** ★★★★★

**PERFORMANCE** ★★★★★

**VALUE** ★★★★★

**OVERALL** ★★★★★

# SIGMA 35mm f/1.4 DG HSM ART

Sigma's Art lenses are usually large and weighty but this one is fairly compact £649/\$799

**M**ake no mistake, the Canon EF 35mm f/1.4L II USM is a terrific lens but it's also very pricey at £2199/\$1999. This Sigma Art lens is a fraction of the price and a much better buy, delivering excellent image quality. And for an Art lens, it's quite compact and lightweight, at 77x94mm and 665g.

Typical of Sigma's Art prime lenses, it features a fast and whisper-quiet ring-type

ultrasonic autofocus system, with the usual availability of manual override. The complex and high-tech optical path includes two aspherical elements, one FLD (Fluorite-grade Low Dispersion) element, and four SLD (Special Low Dispersion) elements. Build quality is excellent throughout but the lens is not weather-sealed.



# CANON RF 50mm F1.8 STM

£199/\$199

Following in the footsteps of the EF 50mm f/1.8 STM, the RF edition is a must-have nifty fifty prime lens

Canon's EF-mount equivalent of this has always been popular for DSLRs, and the latest edition ticks all the boxes for price and performance. Repurposed for EOS R-series cameras, the RF lens brings the same benefits to Canon's full-frame mirrorless line-up. There aren't many compact, affordable full-frame Canon RF lenses, but this one is a no-brainer for prime time. By contrast, Canon's up-market RF 50mm F1.2 lens (also on test) is far heftier at about six times the weight, and costs more than 10 times the price!

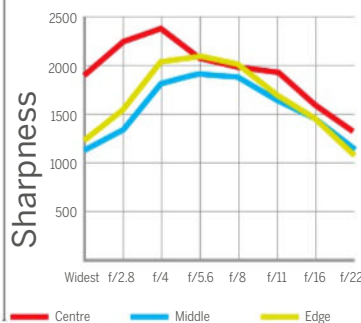
The stepping motor-driven autofocus system is quick and quiet, fast enough for sporty stills and smooth enough for video. An aspherical element contributes to centre-to-edge sharpness, and Canon's Super Spectra Coating reduces ghosting and flare. As usual with Canon's non-L lenses, the hood is sold separately.

Build quality feels a step up from the EF lens, with a classier finish. Unlike most

up-market RF lenses, it lacks a separate, customizable control ring, but its on-board Control/Focus switch enables you to assign functions to the control ring when in autofocus mode.

### Performance

It punches well above its tiny weight, delivering impressive images that combine good wide-open sharpness with pleasant bokeh. It beats the older EF lens in both respects, but like its forerunner, it lacks optical stabilization, which can be an issue with some EOS R-series cameras, as well as when using it as a portrait lens on APS-C bodies apart from the EOS R7.



### FEATURES

- 01 Same diameter as the EF lens, but RF edition has smaller 43mm filter thread.
- 02 Typical of lenses with stepping motor autofocus, its control ring is electronically coupled.
- 03 The Control/Focus switch enables a range of control ring functions.
- 04 Similar build quality as the EF 50mm f/1.8 lens but has a smarter finish.
- 05 Separate ES-65B hood is £35/\$35.

### VERDICT

**FEATURES**  
★★★★☆

**BUILD & HANDLING**  
★★★★★

**PERFORMANCE**  
★★★★★

**VALUE**  
★★★★★

**OVERALL**  
★★★★★

# CANON EF 50mm f/1.8 STM

Small but mighty, it's a brilliant lens that works equally well with APS-C and full-frame DSLRs £129/\$125

The latest and greatest in a long line of Canon EF 50mm f/1.8 lenses for SLRs for both film and digital cameras, the STM edition is by far the best yet. It provides fairly speedy but very quiet operation for stills, along with smooth autofocus transitions during movie capture. The focus ring no longer rotates during autofocus, which improves handling.

Although it's reasonably inexpensive, performance is very good. It's ideal as a standard prime on full-frame cameras, and as a portrait lens on APS-C format bodies, where it has an effective focal length of 80mm. It's arguably the most essential prime lens to complement a DSLR and standard zoom kit.



# CANON RF 50mm F1.2L USM **£2449/\$2299**

Canon's range-topping RF 50mm L-series lens is a bit of a beast with a price tag to match

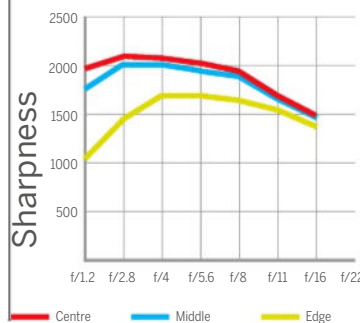
**T**he veteran Canon EF 50mm f/1.2L USM has been a firm favourite with pro wedding and portrait photographers since it was launched 18 years ago. Even so, there have always been question marks over its sharpness at wide apertures. The RF edition puts the old EF lens in the shade. It's not only bigger and heavier, but retains excellent sharpness wide open, while boasting superior handling characteristics. The flip side is that it's far pricier.

Although heavy at 950g, it's not much bigger or weightier than the Sigma 50mm f/1.4 Art (below), despite being a third of an f-stop faster. Like the Sigma, and unusually for RF lenses, this Canon features ring-type ultrasonic autofocus rather than a stepping motor, to speed up movement of the heavy focusing elements. Far more complex than the Canon RF 50mm F1.8 lens on test, the F1.2 is based on 15 optical elements compared with just six. These include one aspherical element and

one UD (Ultra-low Dispersion) element. And unlike the F1.8 lens, there's a separate customizable control ring so alternative functions remain available in autofocus mode.

### Performance

Autofocus is quick, snappy and accurate, teaming up perfectly with the advanced autofocus of EOS R cameras. Sharpness is superb even wide open at f/1.2, where the lens delivers dreamily soft bokeh. That said, the much cheaper RF F1.8 lens delivers similar wide-aperture sharpness at the centre and edges, but the F1.2 lens is superior in the area between the two.



### FEATURES

- 01** 77mm filter thread diameter matches the Sigma f/1.4 Art.
- 02** Independent, multi-function control ring is customizable from camera menus.
- 03** Large, smooth-operating manual focus ring enables precise adjustments.
- 04** Ring-type ultrasonic autofocus system boasts a high-speed processor for fast performance.
- 05** Comprehensive weather seals and comes with a hood.

### VERDICT

**FEATURES**  
★★★★★

**BUILD & HANDLING**  
★★★★★

**PERFORMANCE**  
★★★★★

**VALUE**  
★★★★★

**OVERALL**  
★★★★★

# SIGMA 50mm f/1.4 DG HSM ART

Sigma's Art line 50mm prime represents a sizeable step up in size and performance **£649/\$849**

**S**igma's previous 50mm lens was renowned as being a heavyweight but the replacement Art edition really piles on the pounds, or at least the grams. It's physically 50 per cent longer and gains 310g in weight, taking it to a hefty 815g. It has a much more complex and sophisticated optical path than its predecessor, being based on 13 rather than eight elements. These include one complex

aspherical element and three SLD (Special Low Dispersion) elements. Build quality feels top notch. When speed is of the essence, you can count on the Sigma's autofocus system being very fast and accurate. Most of Sigma's latest Art and Sports lenses now feature weather seals but, as one of the first off the blocks in 2014, this 50mm isn't one of them.



# CANON RF 85mm F2 IS MACRO STM £619/\$599

This is one of the comparatively slower prime lenses in the group, but it's still very adept at portraiture

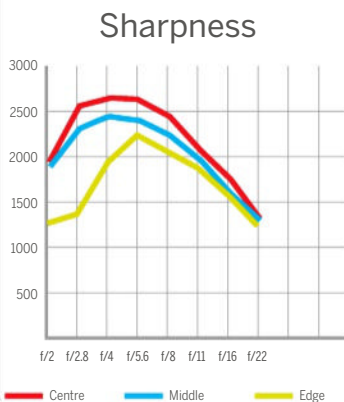
**C**ompared with the RF 85mm F1.2, this is much smaller, less than half the weight and only a quarter of the price. Sure, it's 1.33 f-stops slower than the F1.2, and a third of a stop slower than the older EF 85mm f/1.8 lens, but it still delivers an attractively tight depth of field for portraits.

Handheld photography in low light benefits from a 5-stop hybrid image stabilizer, which is even more effective if combined with the in-body stabilizers of various EOS R cameras. Other useful extras include a customizable control ring and an autofocus range limiter that can lock out the range either side of 0.5m. That's useful as the lens can focus much closer than most 85mm lenses, down to 0.35m, where it gives a large 0.5x macro magnification factor, matching the RF 24mm and RF 35mm lenses. Autofocus is based on a stepping motor, complete with electronically coupled manual override. Build quality feels robust but

there are no weather seals and its hood is sold separately.

## Performance

As we've come to expect from STM lenses, autofocus is quick and virtually silent. The image stabilizer lives up to its claims and handling is a dream. Sharpness across the whole frame is fabulous even if shooting wide open, and it even beats the RF 85mm F1.2 at most directly competing apertures. Colour fringing is negligible and there's only a hint of pincushion distortion. For most, it's a perfect portrait lens for EOS-R series cameras.



## FEATURES

- 01** The ET-77 lens hood is pricey: £59/\$50.
- 02** The customizable control ring can be used for various functions.
- 03** The manual focus ring is electronically coupled, allowing excellent precision.
- 04** A three-position autofocus range limiter switch locks out the short or long end of the range.
- 05** The f/2 aperture rating makes it great for portraiture and still-life photography.

## VERDICT

**FEATURES**  
★★★★★

**BUILD & HANDLING**  
★★★★★

**PERFORMANCE**  
★★★★★

**VALUE**  
★★★★★

**OVERALL**  
★★★★★

# CANON EF 85mm f/1.8 USM

A long-time favourite, this lens ticks all the right boxes for compactness and affordability £489/\$499

**U**nless you're a professional portrait photographer, chances are that you won't want to blow your budget on a single lens. This veteran Canon lens is still a favourite, not least because it's reasonably compact and lightweight. Better still, it only costs a fraction of Canon's faster EF 85mm lenses and is much more lightweight, at 425g.

Originally launched 30 years ago for 35mm film SLRs, the lens has certainly stood the test of time and is equally viable for digital camera bodies. The optical path is fairly simple, based on nine elements in seven groups, but includes Super Spectra coatings to reduce ghosting and flare.



# CANON RF 85mm F1.2L USM

£2999/\$2799

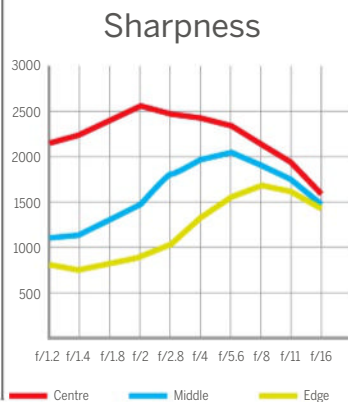
This fast RF-mount 85mm f/1.2 lens easily beats its old EF counterpart in every respect

**T**here's no denying this is a hefty lens, especially coupled to a relatively slimline EOS R System body. It's also very expensive, but you get what you pay for. The highly complex optical path includes aspherical and UD (Ultra-low Dispersion) elements, high-tech Air Sphere Coating, plus BR (Blue spectrum Refractive) optics, which we first saw in the EF 35mm f/1.4L II. The aim is to maximize wide-aperture sharpness and contrast, while keeping both lateral and longitudinal (axial) chromatic aberrations, ghosting, flare and distortion to a minimum.

Build quality is a step up from Canon's older EF f/1.2 lens, with weather seals and fluorine coatings on front and rear elements. The ring-type ultrasonic autofocus system is far faster than in the EF f/1.2 lens but has an electronically coupled manual focus ring that operates with smooth precision. Another addition is the supplemental control ring that can be customized.

## Performance

For an f/1.2 lens, centre sharpness is spectacular even when shooting wide open, while axial chromatic aberration is well controlled and becomes negligible when narrowing the aperture just a little. The quality of bokeh is the best of any lens in the group, and defocused points of light remain particularly well rounded when stopping down. The edges of bokeh disks are even smoother in the DS (Defocus Smoothing) edition of the lens, which has a special coating but is even pricier at £3299/\$3099.



## FEATURES

- 01** Fluorine coatings add to the weather-sealed construction.
- 02** The control ring can be customized to adjust aperture, ISO and shutter speed.
- 03** There's no physical focus distance scale but it would be largely superfluous.
- 04** The electronically coupled manual focus ring enables precise adjustments.
- 05** An autofocus range limiter switch locks out short range from 0.85m to 1.5m.

## VERDICT

**FEATURES**  
★★★★★

**BUILD & HANDLING**  
★★★★★

**PERFORMANCE**  
★★★★★

**VALUE**  
★★★★★

**OVERALL**  
★★★★★

# SIGMA 85mm f/1.4 DG HSM ART

This Sigma lens is a properly heavyweight contender in the portraiture ring – in every way  
£999/\$999

**L**onger and heavier even than Canon's RF 85mm F1.2, this measures 95x126mm and weighs in at 1130g. Typical of Sigma's Art line-up, the design is focused on image quality with no concession to reducing size and weight. A tell-tale sign of the girth is its 86mm filter thread.

The optical path is both long and complex, based on 14 elements. These include an

aspherical element at the rear and two SLD (Special Low Dispersion) elements, placed at the centre and towards the front. We've been thoroughly impressed by the build quality of all Sigma Art-line lenses but, unlike a number of them, this one has the additional bonus of weather seals.





# CANON RF 600mm F11 IS STM £829/\$799

An amazingly compact and lightweight 600mm prime, but it comes with a fixed aperture

This is astonishingly compact and light for a 600mm prime, partly due to a retractable design that shrinks it from 270mm in operation to just 200mm for stowage. At 930g, it's also easily manageable for handheld shooting; indeed, it lacks a tripod mounting ring.

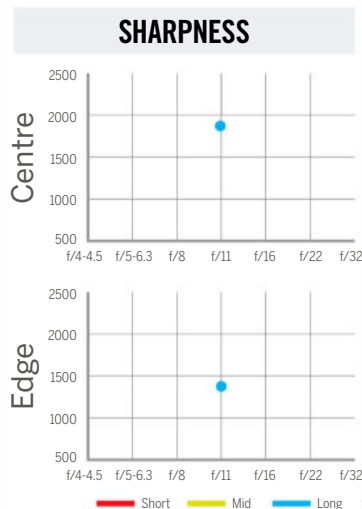
Other factors enabling the downsized design include the use of diffractive optics and a relatively narrow aperture rating of f/11. Given that you're unlikely to want to shoot at a narrower aperture than this, Canon has saved further weight, complexity and expense by not including an aperture diaphragm.

Controls are quite basic, with just an AF/MF switch linked to the STM (Stepping Motor) autofocus system, a Stabilizer on/off switch and an autofocus range limiter to lock out the short sector. A plus point is the additional, customizable control ring. If you need more reach, the lens is compatible with RF 1.4x and 2.0x Extenders, and

there's also an RF 800mm F11 IS STM version of the lens.

## Performance

Autofocus isn't ultra-fast but it's pretty rapid, near-silent and offers smooth transitions shooting movies. Sharpness is impressive, right out to the extreme edges and corners. Colour fringing and distortion are minimal. The 5-stop image stabilizer reinforces its suitability for handheld super-telephoto shooting.



## FEATURES

- 01** The ET-88B lens hood is sold as an optional extra and costs £59/\$50.
- 02** A retractable design makes the lens even smaller for stowage.
- 03** The customizable control ring is situated forward of the manual focus ring.
- 04** Gapless dual-layer diffractive optics play a part in the compact build.
- 05** No diaphragm, so the aperture is fixed at f/11.

## VERDICT

**FEATURES**  
★★★★☆

**BUILD & HANDLING**  
★★★★☆

**PERFORMANCE**  
★★★★☆

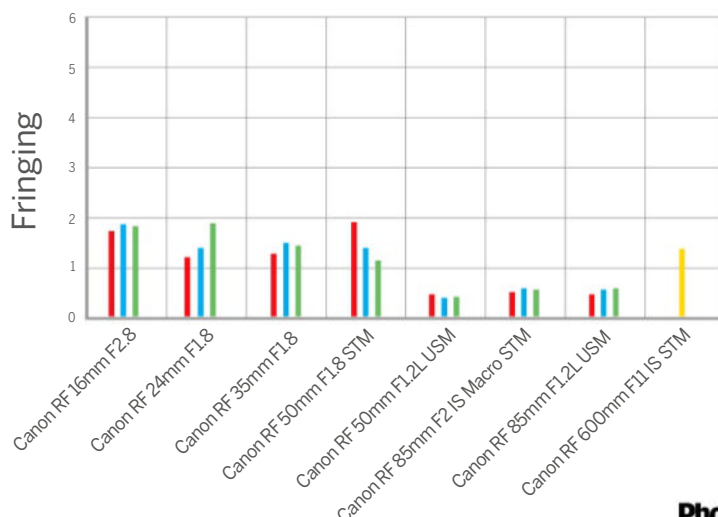
**VALUE**  
★★★★☆

**OVERALL**  
★★★★☆

# COLOUR FRINGING

Automatic in-camera correction helps here

The RF 50mm F1.2L USM, RF 85mm F2 IS Macro STM and RF 85mm F1.2L USM lenses on test win out for control over colour fringing. It's practically imperceptible even out at the edges and corners of the image frame, where lateral chromatic aberration tends to be at its worst. With other lenses on test, colour fringing can be a little noticeable but, as with distortion, highly effective in-camera correction in EOS R System cameras takes it out of the equation.



Lower values represent less fringing, and therefore better performance

## COMPARISON TABLE


								
	<b>CANON RF 16mm F2.8 STM</b>	<b>CANON RF 24mm F1.8 MACRO IS STM</b>	<b>CANON RF 35mm F1.8 IS MACRO STM</b>	<b>CANON RF 50mm F1.8 STM</b>	<b>CANON RF 50mm F1.2L USM</b>	<b>CANON RF 85mm F2 IS MACRO STM</b>	<b>CANON RF 85mm F1.2L USM</b>	<b>CANON RF 600mm F11 IS STM</b>
	www.canon.co.uk	www.canon.co.uk	www.canon.co.uk	www.canon.co.uk	www.canon.co.uk	www.canon.co.uk	www.canon.co.uk	www.canon.co.uk
<b>Street price (UK, USA)</b>	£299/\$299	£669/\$599	£479/\$499	£199/\$199	£2449/\$2299	£619/\$599	£2999/\$2799	£829/\$799
<b>Mount</b>	EOS R (full-frame)	EOS R (full-frame)	EOS R (full-frame)	EOS R (full-frame)	EOS R (full-frame)	EOS R (full-frame)	EOS R (full-frame)	EOS R (full-frame)
<b>APS-C focal length (FF eq)</b>	25.5mm	38.4mm	56mm	80mm	80mm	136mm	136mm	960mm
<b>Elements/groups</b>	9/7	11/9	11/9	6/5	15/9	12/11	13/9	10/7
<b>Aperture diaphragm</b>	7 blades	9 blades	9 blades	7 blades	10 blades	9 blades	9 blades	None
<b>Narrowest aperture</b>	f/22	f/22	f/22	f/22	f/16	f/29	f/16	f/11
<b>Optical stabilizer</b>	No	5-stop	5-stop	No	No	5-stop	No	5-stop
<b>Autofocus type</b>	Stepping motor	Stepping motor	Stepping motor	Stepping motor	Ring-type ultrasonic	Stepping motor	Ring-type ultrasonic	Stepping motor
<b>Manual AF override</b>	Electronically coupled	Electronically coupled	Electronically coupled	Electronically coupled	Electronically coupled	Electronically coupled	Electronically coupled	Electronically coupled
<b>Min focus distance</b>	0.13m	0.14m	0.17m	0.3m	0.4m	0.35m	0.85m	4.5m
<b>Max reproduction ratio</b>	0.26x	0.5x	0.5x	0.25x	0.19x	0.5x	0.12x	0.14x
<b>Filter size</b>	43mm	52mm	52mm	43mm	77mm	67mm	82mm	82mm
<b>Weather seals</b>	None	None	None	None	Full	None	Full	None
<b>Hood</b>	EW-65C, £35/\$40	EW-65B, £49/\$50	EW-52, £25/\$42	ES-65B, £35/\$35	ES-83, included	ET-77, £59/\$50	ET-89, included	ET-88B, £59/\$50
<b>Dimensions (diameter x length)</b>	69x40mm	74x63mm	74x63mm	69x41mm	90x108mm	78x91mm	103x117mm	93x200-270mm
<b>Weight</b>	165g	270g	305g	160g	950g	500g	1195g	930g
<b>FEATURES</b>	★★★★☆	★★★★★	★★★★★	★★★★☆	★★★★★	★★★★★	★★★★★	★★★★☆
<b>BUILD &amp; HANDLING</b>	★★★★☆	★★★★★	★★★★★	★★★★☆	★★★★★	★★★★★	★★★★★	★★★★☆
<b>PERFORMANCE</b>	★★★★☆	★★★★★	★★★★★	★★★★☆	★★★★★	★★★★★	★★★★★	★★★★☆
<b>VALUE</b>	★★★★★	★★★★☆	★★★★★	★★★★★	★★★★☆	★★★★★	★★★★★	★★★★☆
<b>OVERALL</b>	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★

## THE WINNER IS... CANON RF 35mm F1.8 IS MACRO STM

It's hard to pick just one RF prime from those tested – they're all winners in their own right

**F**or versatility and its suitability for everyday shooting, the RF 35mm is our pick of the prime crop. It's the lens we'd use more than any other prime, it has superb performance and is very good value. The RF 24mm gives a wider viewing angle and if you're more into sweeping landscape vistas and even astrophotography, the RF 16mm is for you.

For many photographers, the standard viewing angle of the RF 50mm F1.8 makes it the

most attractive, at a bargain price. It's also a smart choice for portraiture with APS-C format R System cameras. The pro-grade RF 50mm F1.2L enables a tighter depth of field, and is terrific but very pricey. A similar comparison applies to the RF 85mm F2 and F1.2L lenses, which are great for portraiture and still life. For action, sport and wildlife, the RF 600mm offers incredible telephoto reach in an amazingly lightweight build, ideal for handheld shooting. 



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# BUYERS' GUIDE

With prices ranging from a couple of hundred to a few thousand, Canon has an EOS camera to suit everyone, from the complete beginner to most demanding pro. . .

## What to look for

Canon EOS camera ranges

Canon splits its EOS range into mirrorless cameras and DSLRs. Its older DSLR line-up includes beginner, enthusiast and pro ranges; the EOS 4000D is the most basic, the 850D for intermediates, the 90D and full-frame 6D Mk II for advanced enthusiasts, and the full-frame pro-level 5D and 1D lines. Over the page are the two EOS mirrorless ranges: Canon's smaller, older APS-C EOS M cameras, and Canon's EOS R System APS-C and full-frame cameras that offer the very latest digital technology. The APS-C crop-sensor EOS R50, R10 and R7 are smaller, affordable entry-level options. While the EOS R8 up to the R6 Mark II, R5 and flagship R3 are full-frame for serious enthusiasts to professionals. Canon's EOS R cameras are packed with intelligent features and most have IBIS, new AF tracking for any moving subject you shoot, and 20fps to 40fps continuous shooting bursts are common place using the speedy electronic shutter modes.

## DSLR CAMERAS

PRICES QUOTED ARE BODY-ONLY UNLESS STATED

### CANON EOS 4000D

TESTED IN ISSUE 140 PRICE: £370/\$N/A



**CANON** has stripped everything down to its bare essentials for the 4000D, and it's a great if basic DSLR for beginners. And at only £370 (body), it's the cheapest EOS DSLR. Sadly, it's let down by a cheap kit lens that's tough to tolerate, so we suggest buying the better IS lens. ★★☆☆☆

<b>Sensor</b>	18MP APS-C CMOS
<b>Viewfinder</b>	Pentamirror, 0.8x, 95%
<b>ISO</b>	100-6400 (12,800 exp)
<b>AF</b>	9-point (1 cross-type)
<b>LCD</b>	2.7-inch 230K dots
<b>Max burst (buffer)</b>	3fps
<b>Memory card</b>	SD/SDHC/SDXC

### CANON EOS 2000D (REBEL T7)

TESTED IN ISSUE 194 PRICE: £349/\$479



**THE 2000D** is a better-spec Canon camera than the 4000D, but comes with a modest step up in price. It's arguably worth the extra, but that puts it in a difficult spot, where another step up in outlay will get you an EOS 200D, which is a far better overall DSLR camera. ★★☆☆☆

<b>Sensor</b>	24.1MP APS-C CMOS
<b>Viewfinder</b>	Pentamirror, 0.8x, 95%
<b>ISO</b>	100-6400 (12,800 exp)
<b>AF</b>	9-point (1 cross-type)
<b>LCD</b>	3-inch 920K dots
<b>Max burst (buffer)</b>	3fps
<b>Memory card</b>	SD/SDHC/SDXC

### CANON EOS 250D (REBEL SL3)

TESTED IN ISSUE 194 PRICE: £549/\$649



**THE** EOS 250D/Rebel SL3 is not Canon's cheapest entry-level DSLR, but we think it's the best budget/beginner DSLR with the perfect blend of power and value. This is the body that will take people from snapping on their smartphones to getting into the hobby. ★★☆☆☆

<b>Sensor</b>	24.1MP APS-C CMOS
<b>Viewfinder</b>	Pentamirror, 0.87x, 95%
<b>ISO</b>	100-25,600 (51,200 exp)
<b>AF</b>	9-point (1 cross-type)
<b>LCD</b>	3-inch vari-angle touchscreen 1040K
<b>Max burst (buffer)</b>	5fps
<b>Memory card</b>	SD/SDHC/SDXC

### CANON EOS 850D (REBEL T8i)

TESTED IN ISSUE 194 PRICE: £919/\$749



**FOR ENTHUSIASTS** looking to take the next step, the Canon EOS 850D is an impressive, lightweight yet powerful DSLR that captures detailed, colourful and sharper images, as well as 4K movies. Featuring iTR Face and Eye Detection AF, and accurate Auto AF via optical viewfinder, the 850D is sure to satisfy. ★★☆☆☆

<b>Sensor</b>	24.1MP Dual Pixel APS-C CMOS
<b>Viewfinder</b>	Pentamirror, 95% coverage, 0.82x
<b>ISO</b>	100-25,600
<b>AF</b>	45 cross-type AF point system
<b>LCD</b>	3-inch vari-angle touchscreen 1040K
<b>Max burst (buffer)</b>	7fps
<b>Memory card</b>	SD/SDHC/SDXC

## CANON EOS 77D

TESTED IN ISSUE 194 PRICE: £710/\$550



**THE** key specs are identical to the 800D, but the extra top-plate LCD gives at-a-glance access to vital shooting info, while a rear control wheel makes dialing in exposure settings much quicker, promoting it to Canon's enthusiast range. Super image quality – even at high ISOs. ★★★★★

<b>Sensor</b>	24.2MP, APS-C (6000x4000 pixels)
<b>Viewfinder</b>	Pentamirror, 0.82x, 95%
<b>ISO</b>	100-25,600 (51,200 exp)
<b>AF</b>	45-point (all cross-type)
<b>LCD</b>	3-inch vari-angle touchscreen 1040K
<b>Max burst (buffer)</b>	6fps (27 Raw/Unlimited JPEG)
<b>Memory card</b>	SD/SDHC/SDXC

## CANON EOS 90D

TESTED IN ISSUE 194 PRICE: £1299/\$1199



**THE** EOS 90D is still Canon's decathlete crop-camera that comes with a better 32.5MP sensor, super-quick 10fps continuous shooting and 4K video, plus improved handling and decent AF. This camera is an ideal APS-C camera upgrade for enthusiasts and beyond. ★★★★★

<b>Sensor</b>	32.5MP, APS-C (6960x4640 pixels)
<b>Viewfinder</b>	Pentaprism, 0.95x, 100%
<b>ISO</b>	100-25,600 (51,200 exp)
<b>AF</b>	45-point (all cross-type)
<b>LCD</b>	3-inch vari-angle touchscreen 1040K
<b>Max burst (buffer)</b>	10fps (25 Raw/58 JPEG)
<b>Memory card</b>	SD/SDHC/SDXC

## CANON EOS 7D MARK II

TESTED IN ISSUE 159 PRICE: £1050/\$725



**HERE'S** the king of action-packed APS-C format EOS cameras. A little long in the tooth now, but it still has 65-point AF with advanced tracking, 10fps continuous drive, dual DIGIC 6 processors and GPS, all wrapped up in a tough, weather-sealed magnesium alloy shell. ★★★★★

<b>Sensor</b>	20.2MP, APS-C (5472x3648 pixels)
<b>Viewfinder</b>	Pentaprism, 1.0x, 100%
<b>ISO</b>	100-16,000 (51,200 exp)
<b>AF</b>	65-point (all cross-type)
<b>LCD</b>	3-inch 1040K dots
<b>Max burst (buffer)</b>	10fps (31 Raw/unlimited JPEG)
<b>Memory card</b>	CompactFlash + SD/SDHC/SDXC

## CANON EOS 6D MARK II

TESTED IN ISSUE 194 PRICE: £1339/\$1399



**THE** world's smallest full-frame DSLR – with a vari-angle touchscreen LCD – gets a major upgrade over the original 6D with improved speed and performance rather than outright image quality. It's a great all-rounder now thanks to an improved AF system and burst rate. ★★★★★

<b>Sensor</b>	26.2MP, full-frame (6240x4160 pixels)
<b>Viewfinder</b>	Optical pentaprism, 98%
<b>ISO</b>	100-40,000 (50-102,400 exp)
<b>AF</b>	45-point (all cross-type)
<b>LCD</b>	3-inch vari-angle touchscreen 1040K
<b>Max burst (buffer)</b>	6.5fps (21 Raw/150 JPEG)
<b>Memory card</b>	SD/SDHC/SDXC

## CANON EOS 5D MARK IV

TESTED IN ISSUE 194 PRICE: £2869/\$2699



**A SUPERB** all-rounder, the pro-level weather-sealed full-frame 5D Mk IV combines a stunning hi-res 30MP sensor with a swift 7fps frame rate. Its impressive specs list includes 4K video, a touchscreen LCD, Wi-Fi and NFC connectivity, and GPS to automatically geotag images. ★★★★★

<b>Sensor</b>	30.4MP, full-frame (6720x4480 pixels)
<b>Viewfinder</b>	Pentaprism, 0.71x, 100%
<b>ISO</b>	100-32,000 (50-102,400 exp)
<b>AF</b>	61-point (41 cross-type, 5 dual-cross)
<b>LCD</b>	3.2-inch touchscreen 1620K dots
<b>Max burst (buffer)</b>	7fps (21 Raw/unlimited JPEG)
<b>Memory card</b>	CompactFlash + SD/SDHC/SDXC

## CANON EOS 5DS (5DS R)

TESTED IN ISSUE 148 PRICE: £2740/\$1499



**THE** world's first 50MP full-frame DSLR delivers huge and amazingly detailed hi-res images. The higher-cost 5DS R adds a low-pass cancellation filter for marginally sharper shots. As expected with such a high-res sensor, max ISO and drive rate are lower than with the 5D Mk IV. ★★★★★

<b>Sensor</b>	50.6MP, full-frame (8688x5792 pixels)
<b>Viewfinder</b>	Pentaprism, 0.71x, 100%
<b>ISO</b>	100-6400 (50-12,800 exp)
<b>AF</b>	61-point (41 cross-type, 5 dual-cross)
<b>LCD</b>	3.2-inch 1040K dots
<b>Max burst (buffer)</b>	5fps (14 Raw/510 JPEG)
<b>Memory card</b>	CompactFlash + SD/SDHC/SDXC

## CANON EOS-1D X MARK III

TESTED IN ISSUE 194 PRICE: £6999/\$6499



**THE** Canon EOS-1D X Mark III is the ultimate hybrid DSLR/mirrorless machine, with superb low-light performance up to ISO102,400, expandable to 819,200, Deep Learning AF and 5.5K Raw video. It can also capture up to 20fps in Live View mode, making it a dream to shoot any action. ★★★★★

<b>Sensor</b>	20.1MP full-frame (5472x3648 pixels)
<b>Viewfinder</b>	Pentaprism, 0.76x, 100% coverage
<b>ISO</b>	100-102,400 (exp 50-819,200)
<b>AF</b>	191-point (155 cross-type)
<b>LCD</b>	3.2-inch touchscreen 2.1m dots
<b>Max burst (buffer)</b>	20fps (1000 Raw/unlimited JPEG)
<b>Memory card</b>	2xCfexpress 1.0 Type B

# MIRRORLESS CAMERAS

PRICES QUOTED ARE BODY-ONLY UNLESS STATED

## CANON EOS M200

TESTED IN ISSUE 194 PRICE with 15-45mm kit lens: **£570/\$549**



**CANON'S** EOS M200 is aimed at attracting Instagramers and smartphone upgraders to Canon's mirrorless M range, and has an appealing spec list including its 24MP sensor and plenty of easy-to-use features for beginners. It shoots 4K video to seal the deal. **★★★★★**

<b>Sensor</b>	24.1MP APS-C CMOS
<b>Viewfinder</b>	No
<b>ISO</b>	100-25,600 (51,200 exp)
<b>AF</b>	143-point AF
<b>LCD</b>	3-inch tilting touchscreen 1040K dots
<b>Max burst (buffer)</b>	6.1fps
<b>Memory card</b>	SD/SDHC/SDXC and UHS-1

## CANON EOS M50 MARK II

TESTED IN ISSUE 194 PRICE: **£589/\$599**



**IF YOU'RE** coming to the EOS M system afresh, the EOS M50 Mark II is a compact and capable camera, taking great stills and 1080p video, ideal for travel, everyday imaging, plus vlogging and content creation. But if you need to record 4K, this isn't the camera for you. **★★★★★**

<b>Sensor</b>	24.1MP CMOS APS-C
<b>Viewfinder</b>	OLED EVF, 2.36 million dots
<b>ISO</b>	100-25,600 (exp. to 51,200)
<b>AF</b>	Dual Pixel CMOS AF, 3975 focus positions
<b>LCD</b>	3-inch vari-angle touchscreen 1040K dots
<b>Max burst (buffer)</b>	10fps
<b>Memory card</b>	1x SD UHS-I

## CANON EOS M6 MARK II

TESTED IN ISSUE 194 PRICE: **£799/\$849**



**THE** M6 Mk II is Canon's compact yet powerful APS-C mirrorless, designed to deliver sharp images for amateurs on the move. It has the same 32.5MP APS-C sensor as the Canon 90D DSLR, but it's able to shoot in 14fps blasts, and 30fps Raw image bursts, plus uncropped 4K video. **★★★★★**

<b>Sensor</b>	32.5MP APS-C CMOS
<b>Viewfinder</b>	No
<b>ISO</b>	100-25,600
<b>AF</b>	143/99-point
<b>LCD</b>	3-inch tilting touchscreen 1040K dots
<b>Max burst (buffer)</b>	14fps (23 Raws, 54 JPEGs)
<b>Memory card</b>	SD/SDHC/SDXC and UHS-1

## CANON EOS M5

TESTED IN ISSUE 168 PRICE with 15-45mm kit lens: **£780/N/A**



**AS** Canon's flagship mirrorless M camera for enthusiasts, the EOS M5 really opens up the DSLR vs CSC debate. It shares much of the tech as the 80D, but swaps the optical viewfinder for an electronic version, making this compact system camera a pocket rocket. **★★★★★**

<b>Sensor</b>	24.2MP APS-C CMOS
<b>Viewfinder</b>	OLED EVF, 2.36 million dots
<b>ISO</b>	100-25,600
<b>AF</b>	49-point AF
<b>LCD</b>	3.2-inch tilting touchscreen 1620k dots
<b>Max burst (buffer)</b>	9fps
<b>Memory card</b>	SD/SDHC/SDXC and UHS-1

## CANON EOS R100

TESTED IN ISSUE 206 PRICE with 18-45mm kit lens: **£669/\$599**



**THE** Canon EOS R100 is effectively the mirrorless replacement for the 250D and 2000D, aimed at first-timers looking for better image quality than a smartphone. It boasts a robust 24.1MP APS-C sensor, great autofocus and wide-spanning lens line-up, all without breaking the bank. **★★★★★**

<b>Sensor</b>	24.1MP APS-C CMOS
<b>Viewfinder</b>	2.36 million dots, 60fps
<b>ISO</b>	100-12,800 (25,600 exp)
<b>AF</b>	Dual Pixel CMOS AF II (88% coverage)
<b>LCD</b>	3-inch fixed (non-touch) screen 1.04m dots
<b>Max burst (buffer)</b>	6.5fps (3.5fps with AF)
<b>Memory card</b>	1x SD/SDHC/SDXC slot

## CANON EOS R50

TESTED IN ISSUE 204 PRICE: **£789/\$679**



**UTILIZING** the small and compact size of the M50 yet improving upon its specs in every way, with the sensor/processor from the R10, the R50 is one of the best pocket-friendly cameras today. With a 24.2MP APS-C sensor, 4K video, intelligent AF modes, and 15/12fps continuous shooting, the R50 is a great beginner camera. **★★★★★**

<b>Sensor</b>	24.2MP APS-C CMOS
<b>Viewfinder</b>	0.39 OLED, 2.36 million dots, 120fps
<b>ISO</b>	100-12800 (25600 exp)
<b>AF</b>	Dual Pixel CMOS AF II
<b>LCD</b>	3-inch vari-angle touchscreen 1.62 dots
<b>Max burst (buffer)</b>	15fps electronic, 12fps electronic 1st curtain
<b>Memory card</b>	1x UHS-1 SD

## CANON EOS R10

TESTED IN ISSUE 194 PRICE: **£899/\$979**



**CANON'S** budget, beginner EOS R10 – with pro-level autofocus and 15fps speed, 4K 60p imaging and 120p slow motion at 1080p – offers performance that punches well above its weight. The lack of in-body image stabilization or the crop at 4K 60p are the only drawbacks. **★★★★★**

<b>Sensor</b>	24.2MP APS-C CMOS
<b>Viewfinder</b>	2.36 million dots, 120fps
<b>ISO</b>	100-32,000 (51,200 exp)
<b>AF</b>	651 Dual Pixel CMOS AF II divisions
<b>LCD</b>	3-inch vari-angle touchscreen 1.04m dots
<b>Max burst (buffer)</b>	23fps electronic, 15fps mechanical
<b>Memory card</b>	1x SD/SDHC/SDXC, UHS-II

APS-C EOS M

BEGINNER EOS R

**CANON EOS RP**

TESTED IN ISSUE 194 PRICE: £1049/\$999



**CANON'S** RP is ideal for crop-sensor CSC M or EOS DSLR users looking for a full-frame upgrade that won't break the bank. The EOS RP is strong spec package that's notably smaller, lighter and cheaper than almost all its rivals, and ideal as an entry-level full-frame camera. ★★★★★

<b>Sensor</b>	26.2MP full-frame CMOS
<b>Viewfinder</b>	0.39-inch EVF, 2.36 million dots
<b>ISO</b>	100-40,000 (50-102,400 exp)
<b>AF</b>	4779 Dual Pixel AF positions
<b>LCD</b>	3-inch vari-angle touchscreen 1040K
<b>Max burst (buffer)</b>	5fps (50 Raw/Unlimited JPEG)
<b>Memory card</b>	SD/SDHC/SDXC and UHS-II

**CANON EOS R7**

TESTED IN ISSUE 194 PRICE: £1349/\$1499



**THE** Canon EOS R7 is the first mirrorless camera to reach for if you want the advantages of APS-C with pro-level 15fps speed, intelligent AF, IBIS, and big-time image resolution. It's a fantastic addition to the EOS R ecosystem and a worthy successor to the 90D and 7D DSLR lines. ★★★★★

<b>Sensor</b>	32.5MP APS-C CMOS
<b>Viewfinder</b>	2.36 million dots, 120fps
<b>ISO</b>	100-32,000 (51,200 exp)
<b>AF</b>	651 Dual Pixel CMOS AF II divisions
<b>LCD</b>	3-inch vari-angle touchscreen 1.62m dots
<b>Max burst (buffer)</b>	30fps electronic, 15fps mechanical
<b>Memory card</b>	2x SD/SDHC/SDXC, UHS-II

**CANON EOS R8**

TESTED IN ISSUE 203 PRICE: £1699/\$1499



**CANON'S** R8 is the lightest full-frame EOS R camera, and can shoot it all, with the same sensor and processor as the R6 Mk II, latest AF subject recognition, 24.2MP images, and rapid 40fps shooting. But there's no joystick or thumb dial, no IBIS, and smaller batteries. ★★★★★

<b>Sensor</b>	24.2MP full-frame CMOS
<b>Viewfinder</b>	0.39 OLED, 2.36 million dots, 120fps
<b>ISO</b>	100-25600 (102,400 exp)
<b>AF</b>	Dual Pixel CMOS AF II
<b>LCD</b>	3-inch vari-angle touchscreen 1.62 dots
<b>Max burst (buffer)</b>	40fps electronic, 6fps electronic 1st curtain
<b>Memory card</b>	1x UHS-II SD

**CANON EOS R**

TESTED IN ISSUE 194 PRICE: £1449/\$1799



**THE** first full-frame mirrorless Canon EOS R boasts the RF mount and fully articulated vari-angle Dual Pixel AF touchscreen with 5655 AF points. Equivalent in many specs to the 5D Mark IV DSLR, it's now a cheaper EOS R option for those looking to experience mirrorless photography. ★★★★★

<b>Sensor</b>	30.3MP full-frame CMOS
<b>Electronic viewfinder</b>	0.5-inch EVF, 3.69 million dots
<b>ISO</b>	100-40,000 (50-102,400 exp)
<b>AF</b>	5655 Dual Pixel AF points
<b>LCD</b>	3.2-in vari-angle touchscreen 2.1m dots
<b>Max burst (buffer)</b>	Approx. 8fps (47 Raw, 100 JPEG)
<b>Memory card</b>	1x SD/SDHC/SDXC and UHS-II

**CANON EOS R6 MARK II**

TESTED IN ISSUE 200 PRICE: £2779/\$3599



**WHAT** can't this camera do? The R6 Mark II is a hybrid camera that packs an obscene amount of firepower, with up to 6K video and 24.2MP stills at a startling 40fps. Plus updated AF detection for tracking trains, planes and horses (with the usual animal, people, vehicles AF detection) for sharp shots of anything that moves. ★★★★★

<b>Sensor</b>	24.2MP full-frame CMOS
<b>Viewfinder</b>	0.5-inch OLED, 3.69 million dots
<b>ISO</b>	100-102,400 (50-204,800 exp)
<b>AF</b>	4897 Dual Pixel AF positions
<b>LCD</b>	3-inch vari-angle touchscreen 1.62m dots
<b>Max burst (buffer)</b>	12fps mechanical, 40fps electronic
<b>Memory card</b>	2xUHS-II SD

**CANON EOS R5**

TESTED IN ISSUE 194 PRICE: £4299/\$3899



**THE** Canon EOS R5 is deserving of the hype: it's the perfect amalgamation of the R's full-frame form, the 5D's function, the pro-grade autofocus of the flagship EOS-1D X Mark III DSLR, plus with near-medium format resolution, 20fps burst speeds and mirrorless magic such as IBIS and amazingly-intelligent Animal AF. ★★★★★

<b>Sensor</b>	45MP full-frame CMOS
<b>Viewfinder</b>	OLED EVF, 5690K dots
<b>ISO</b>	100-51,200 (50-102,400 exp)
<b>AF</b>	5940 Dual Pixel CMOS AF II
<b>LCD</b>	3.15-in vari-angle touchscreen 2100K dots
<b>Max burst (buffer)</b>	12fps mechanical, 20fps electronic
<b>Memory card</b>	CFexpress type B, UHS-II SD/SDHC/SDXC

**CANON EOS R3**

TESTED IN ISSUE 194 PRICE: £5879/\$5999



**CANON'S** sporty pro mirrorless R3 has clever AF that's amazing at detecting vehicles as well as people and animals, Eye Control AF, faster 30fps, blackout-free EVF, and it can take 4K 60p video without overheating, which means the R3 succeeds where the R5 fell short. ★★★★★

<b>Sensor</b>	24.1MP stacked CMOS
<b>Viewfinder</b>	0.5-inch EVF, 5.76 million dots
<b>ISO</b>	100-102,400 (50-204,800 exp)
<b>AF</b>	4779 Dual Pixel AF positions
<b>LCD</b>	3-inch vari-angle touchscreen 4.15m dots
<b>Max burst (buffer)</b>	12fps mechanical, 30fps electronic
<b>Memory card</b>	CFexpress type, SD/SDHC/SDXC

# PhotoPlus BUYERS' GUIDE

## Choosing lenses

### Key factors to watch out for

The main factors to consider in a lens are its focal length, maximum aperture and if it's full-frame compatible or not. We've categorized lenses by focal length range from wide-angle to telephoto. The larger a lens's maximum aperture, the 'faster' it is. Zooms are more flexible than primes, but tend not to have such fast maximum apertures. Full-frame lenses will also work with 'crop-sensor' EOS DSLRs, but crop-sensor lenses aren't compatible with full-frame cameras. For Canon EOS R mirrorless cameras the dedicated Canon RF lenses are best, but using Canon's Mount Adapter EF-EOS R enables EF-S and EF lenses to be used on EOS R cameras.



With over 200 lenses we've listed for Canon EOS cameras, picking the right one can be tough. Here's the lowdown!

**KEY:** ● BEST VALUE AWARD ● BEST ON TEST AWARD

WIDE-ANGLE ZOOMS

### WIDE-ANGLE ZOOMS

	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF 8-15mm f/4L Fisheye USM	£1120/\$1250	Yes	1.9x	No	f/4	540g	0.15m	0.34x	None	7	90	★★★★☆	
Canon EF-S 10-18mm f/4.5-5.6 IS STM	£249/\$299	No	1.8x	Yes	f/4.5-5.6	240g	0.22m	0.15x	67mm	7	214	★★★★☆	
Canon EF-S 10-22mm f/3.5-4.5 USM	£500/\$650	No	2.2x	No	f/3.5-4.5	385g	0.24m	0.17x	77mm	6	131	★★★★☆	
Canon EF 11-24mm f/4L USM	£3099/\$2899	Yes	2.2x	No	f/4	1180g	0.28m	0.16x	None	9	203	★★★★☆	
Canon RF 10-20mm F4L IS STM	£2579/\$2299	Yes	2.0x	Yes	f/4	570g	0.25m	0.12x	N/A	9	211		
Canon RF 14-35mm F4L IS USM	£1749/\$1399	Yes	2.5x	Yes	f/4	540	0.20m	0.38x	77mm	9	210	★★★★☆	●
Canon RF 15-35mm F2.8L IS USM	£2599/\$2199	Yes	2.3x	Yes	f/2.8	840	0.28m	0.21x	82mm	9	210	★★★★☆	
Canon RF-S 10-18mm F4.5-6.3 IS STM	£379/\$329	No	1.8x	Yes	f/4.5-6.3	150g	0.14m	0.23x	49mm	7	212		
Canon EF 16-35mm f/2.8L III USM	£2199/\$2199	Yes	2.2x	No	f/2.8	790g	0.28m	0.22x	82mm	9	195	★★★★☆	
Canon EF 16-35mm f/4L IS USM	£1389/\$1299	Yes	2.2x	Yes	f/4	615g	0.28m	0.23x	77mm	9	210	★★★★☆	●
Canon EF 17-40mm f/4L USM	£779/\$799	Yes	2.4x	No	f/4	500g	0.28m	0.24x	77mm	7	214	★★★★☆	●
Sigma 8-16mm f/4.5-5.6 DC HSM	£600/\$800	No	2.0x	No	f/4.5-5.6	555g	0.24m	0.13x	None	7	143	★★★★☆	
Sigma 10-20mm f/3.5 EX DC HSM	£319/\$399	No	2.0x	No	f/3.5	520g	0.24m	0.15x	82mm	7	176	★★★★☆	
Sigma 12-24mm f/4 DG HSM A	£1269/\$1239	Yes	2.0x	No	f/4	1150g	0.24m	0.2x	None	9	203	★★★★☆	
Sigma 14-24mm f/2.8 DG HSM A	£1269/\$1299	Yes	0.19x	No	f/2.8	1150g	0.26m	0.19x	None	9	195	★★★★☆	●
Sigma 24-35mm f/2 DG HSM A	£760/\$900	Yes	1.5x	No	f/2	940g	0.28m	0.23x	77mm	7	113	★★★★☆	
Tamron 10-24mm f/3.5-4.5 Di II VC HLD	£449/\$499	No	0.19x	Yes	f/3.5-4.5	440g	0.24m	0.19x	77mm	7	176	★★★★☆	●
Tamron SP 15-30mm f/2.8 Di VC USD	£930/\$1100	Yes	2.0x	Yes	f/2.8	1100g	0.28m	0.2x	None	9	143	★★★★☆	
Tamron SP 15-30mm f/2.8 Di VC USD G2	£1099/\$1299	Yes	2.0x	Yes	f/2.8	1110g	0.28m	0.2x	None	9	176	★★★★☆	
Tokina 11-16mm f/2.8 AT-X PRO DX II	£480/\$500	No	1.8x	No	f/2.8	560g	0.28m	0.12x	77mm	9	87	★★★★☆	
Tokina 11-20mm f/2.8 AT-X PRO DX	£493/\$549	No	1.43x	No	f/2.8	560g	0.28m	0.12x	82mm	9	195	★★★★☆	
Tokina 12-28mm f/4 AT-X Pro DX	£450/\$400	No	2.3x	No	f/4	530g	0.25m	0.2x	82mm	9	116	★★★★☆	
Tokina 16-28mm f/2.8 FF	£699/\$699	Yes	1.8x	No	f/2.8	940g	0.28m	0.19x	82mm	9	154	★★★★☆	
Tokina 17-35mm f/4 AT-X PRO FX	£570/\$450	Yes	2.1x	No	f/4	600g	0.28m	0.21x	82mm	9			

TELEPHOTO ZOOMS

### TELEPHOTO ZOOMS

	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF-M 55-200mm f/4.5-6.3 IS STM	£299/\$349	No	3.6x	Yes	f/4.5-6.3	260g	1.0m	0.21x	52mm	7	196	★★★★☆	
Canon RF-S 55-210mm F5-7.1 IS STM	£429/\$349	No	3.8x	Yes	f/5-7.1	270g	1.0m	0.28x	55mm	7	209	★★★★☆	
Canon EF-S 55-250mm f/4-5.6 IS STM	£309/\$299	No	4.5x	Yes	f/4-5.6	375g	0.85m	0.29x	58mm	7	214	★★★★☆	
Canon EF 70-200mm f/2.8L IS III USM	£2149/\$2099	Yes	2.9x	Yes	f/2.8	1480g	1.2m	0.21x	77mm	8	175	★★★★☆	
Canon EF 70-200mm f/2.8L USM	£1330/\$1250	Yes	2.9x	No	f/2.8	1310g	1.5m	0.16x	77mm	8	64	★★★★☆	
Canon EF 70-200mm f/4L IS II USM	£1629/\$1499	Yes	2.9x	Yes	f/4	780g	1.0m	0.27x	72mm	9	210	★★★★☆	
Canon EF 70-200mm f/4L IS USM	£360/\$500 (used)	Yes	2.9x	Yes	f/4	760g	1.2m	0.21x	72mm	8	196	★★★★☆	
Canon EF 70-200mm f/4L USM	£589/\$599	Yes	2.9x	No	f/4	705g	1.2m	0.21x	67mm	8	163	★★★★☆	
Canon RF 70-200mm F2.8L IS USM	£2999/\$2699	Yes	2.9x	Yes	f/2.8	1070g	0.7m	0.23x	77mm	9	210	★★★★☆	
Canon RF 70-200mm F4L IS USM	£1769/\$1499	Yes	2.9x	Yes	f/4	695g	0.6m	0.28x	77mm	9	210	★★★★☆	
Canon EF 70-300mm f/4-5.6 IS USM	£400/\$650	Yes	4.3x	Yes	f/4-5.6	630g	1.5m	0.26x	58mm	8	123	★★★★☆	
Canon EF 70-300mm f/4-5.6 IS II USM	£639/\$599	Yes	4.3x	Yes	f/4-5.6	710g	1.2m	0.25x	67mm	9	214	★★★★☆	
Canon EF 70-300mm f/4-5.6L IS USM	£690/\$800 (used)	Yes	4.3x	Yes	f/4-5.6	1050g	1.2m	0.21x	67mm	8	196	★★★★☆	
Canon EF 70-300mm f/4.5-5.6 DO IS USM	£1380/\$1400	Yes	4.3x	Yes	f/4.5-5.6	720g	1.4m	0.19x	58mm	6	90	★★★★☆	
Canon EF 75-300mm f/4-5.6 III	£210/\$200	Yes	4.0x	No	f/4-5.6	480g	1.5m	0.25x	58mm	7	15	★★★★☆	
Canon EF 75-300mm f/4-5.6 III USM	£260/\$190	Yes	4.0x	No	f/4-5.6	480g	1.5m	0.25x	58mm	7	70	★★★★☆	
Canon EF 100-400mm f/4.5-5.6L IS II USM	£2599/\$2399	Yes	4.0x	Yes	f/4.5-5.6	1640g	0.98m	0.31x	77mm	9	210	★★★★☆	
Canon RF 100-400mm F5.6-8 IS USM	£699/\$649	Yes	4.0x	Yes	f/5.6-8	635g	0.88m	0.41x	67mm	9	210	★★★★☆	●
Canon RF 100-500mm F4.5-7.1L IS USM	£2939/\$2699	Yes	5x	Yes	f/4.5-7.1	1530g	0.9-1.2m	0.33x	77mm	9	210	★★★★☆	●
Canon RF 200-800mm F6.3-9 IS USM	£2299/\$1899	Yes	4.0x	Yes	f/6.3-9	2050g	0.8m	0.25x	95mm	9	213		
Canon EF 200-400mm f/4L IS USM Extender 1.4x	£11,209/\$10,999	Yes	2.8x	Yes	f/4	3620g	2.0m	0.15x	52mm	9	182	★★★★☆	
Sigma 50-100mm f/1.8 DC HSM A	£949/\$1099	No	2.0x	None	f/1.8	1490g	0.95m	0.15x	82mm	9	175	★★★★☆	
Sigma 50-500mm f/4.5-6.3 DG OS HSM	£1160/\$1660	Yes	10.0x	Yes	f/4.5-6.3	1970g	0.5-1.8m	0.32x	95mm	9	130	★★★★☆	
Sigma 60-600mm f/4.5-6.3 DG OS HSM Sport	£1699/\$1999	Yes	10.0x	Yes	f/4.5-6.3	2700g	0.6-2.6m	0.3x	105mm	9	182	★★★★☆	
Sigma 70-200mm f/2.8 EX DG OS HSM	£900/\$1300	Yes	2.9x	Yes	f/2.8	1430g	1.4m	0.13x	77mm	9	137	★★★★☆	●
Sigma 70-200mm f/2.8 DG OS HSM S	£1179/\$1499	Yes	2.9x	Yes	f/2.8	1805g	1.2m	0.21x	82mm	11	190	★★★★☆	●
Sigma 70-300mm f/4-5.6 DG Macro	£130/\$140	Yes	4.3x	No	f/4-5.6	545g	0.95m	0.5x	58mm	9	123	★★★★☆	
Sigma APO 70-300mm f/4-5.6 DG Macro	£180/\$180	Yes	4.3x	No	f/4-5.6	550g	0.95m	0.5x	58mm	9	137	★★★★☆	
Sigma 100-400mm f/5-6.3 DG OS HSM C	£899/\$799	Yes	4x	Yes	f/5-6.3	1160g	1.6m	0.26x	67mm	9	196	★★★★☆	●
Sigma 120-300mm f/2.8 DG OS HSM S	£2699/\$3599	Yes	2.5x	Yes	f/2.8	3390g	1.5-2.5m	0.12x	105mm	9	175	★★★★☆	
Sigma 150-600mm f/5-6.3 DG OS HSM C	£849/\$899	Yes	4.0x	Yes	f/5-6.3	1930g	2.8m	0.2x	95mm	9	193	★★★★☆	
Sigma 150-600mm f/5-6.3 DG OS HSM S	£1279/\$1699	Yes	4.0x	Yes	f/5-6.3	2860g	2.6m	0.2x	105mm	9	206	★★★★☆	
Tamron SP AF 70-200mm f/2.8 Di LD (IF) Macro	£630/\$770	Yes	2.9x	No	f/2.8	1320g	0.95m	0.32x	77mm	9	137	★★★★☆	
Tamron SP 70-200mm f/2.8 Di VC USD G2	£1249/\$1299	Yes	2.9x	Yes	f/2.8	1500g	0.95m	0.16x	77mm	9	175	★★★★☆	●
Tamron 70-210mm f/4 Di VC USD	£549/\$599	Yes	2.9x	Yes	f/4	860g	0.95m	0.32x	67mm	9	175	★★★★☆	
Tamron AF 70-300mm f/4-5.6 Di LD Macro	£130/\$145	Yes	4.3x	No	f/4-5.6	458g	0.95m	0.5x	62mm	9	137	★★★★☆	
Tamron SP AF 70-300mm f/4-5.6 Di VC USD	£230/\$250 (used)	Yes	4.3x	Yes	f/4-5.6	765g	1.5m	0.25x	62mm	9	196	★★★★☆	●
Tamron 100-400mm f/4.5-6.3 Di VC USD	£819/\$799	Yes	4x	Yes	f/4-5.6	1135g	1.5m	0.28x	67mm	9	196	★★★★☆	
Tamron SP 150-600mm f/5-6.3 Di VC USD G2	£1299/\$1399	Yes	4.0x	Yes	f/5-6.3	2010g	2.2m	0.26x	95mm	9	206	★★★★☆	
Tokina SZX Super Tele 400mm F8 Reflex MF	£250/\$239	No	N/A	No	f/8	355g	1.15m	0.4x	67mm	9	206	★★★★☆	



KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

STANDARD ZOOMS	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF-S 15-85mm f/3.5-5.6 IS USM	£779/\$699	No	5.7x	Yes	f/3.5-5.6	575g	0.35m	0.21x	72mm	7	207	★★★★☆	
Canon EF-S 17-55mm f/2.8 IS USM	£849/\$879	No	3.2x	Yes	f/2.8	645g	0.35m	0.17x	77mm	7	207	★★★★★	●
Canon EF-S 18-55mm f/3.5-5.6 IS II	£170/\$200	No	3.1x	Yes	f/3.5-5.6	200g	0.25m	0.34x	58mm	6	110	★★★★☆	
Canon EF-S 18-55mm f/3.5-5.6 IS STM	£219/\$249	No	3.1x	Yes	f/3.5-5.6	205g	0.25m	0.36x	58mm	7	207	★★★★☆	
Canon RF 24-50mm F4.5-6.3 IS STM	£379/\$299	Yes	38.4x	Yes	f/4.5-6.3	210g	0.35m	0.19x	58mm	7	207	★★★★☆	
Canon EF 24-70mm f/2.8L II USM	£1740/\$1599	Yes	2.9x	No	f/2.8	805g	0.38m	0.21x	82mm	9	162	★★★★★	
Canon RF 24-70mm F2.8L IS USM	£2519/\$2199	Yes	2.9x	Yes	f/2.8	900g	0.21m	0.30x	82mm	9	210	★★★★★	●
Canon EF 24-70mm f/4L IS USM	£800/\$849	Yes	2.9x	Yes	f/4	600g	0.38m	0.7x	77mm	9	162	★★★★☆	
Canon RF 28-70mm F2L USM	£2500/\$3200	Yes	2.9x	No	f/2	1430g	0.39m	0.18x	95mm	9			
Canon RF 24-105mm F2.8L IS USM Z	£3439/\$2999	Yes	4.4x	Yes	f/2.8	1330g	0.45m	0.08-0.29m	82mm	11	212		
Canon EF 24-105mm f/3.5-5.6 IS STM	£579/\$599	Yes	4.4x	Yes	f/3.5-5.6	525g	0.40m	0.3x	77mm	7	162	★★★★☆	
Canon EF 24-105mm f/4L IS II USM	£1389/\$1299	Yes	4.4x	Yes	f/4	795g	0.45m	0.24x	77mm	10	210	★★★★☆	
Canon RF 24-105mm F4-7.1 IS STM	£429/\$399	Yes	4.4x	Yes	f/4-7.1	385g	0.13m	0.34x	67mm	7	209	★★★★☆	
Canon RF 24-105mm F4L IS USM	£1389/\$1299	Yes	4.4x	Yes	f/4	700g	0.40m	0.24x	77mm	9	210	★★★★☆	
Canon RF-S 18-45mm F4.5-6.3 IS STM	£299/\$299	No	2.5x	Yes	f/4.5-6.3	124g	0.20m	0.16x	49mm	7	210	★★★★☆	
Sigma 17-50mm f/2.8 EX DC OS HSM	£330/\$370	No	2.9x	Yes	f/2.8	565g	0.28m	0.2x	77mm	7	127	★★★★☆	
Sigma 17-70mm f/2.8-4 DC Macro OS HSM C	£350/\$399	No	4.1x	Yes	f/2.8-4	465g	0.22m	0.36x	72mm	7	180	★★★★☆	
Sigma 18-35mm f/1.8 DC HSM A	£650/\$800	No	1.9x	No	f/1.8	810g	0.28m	0.23x	72mm	9	90	★★★★★	
Sigma 24-70mm f/2.8 DG OS HSM A	£1149/\$1299	Yes	2.9x	Yes	f/2.8	1,020g	0.38m	0.2x	82mm	9	190	★★★★★	
Sigma 24-105mm f/4 DG OS HSM A	£639/\$899	Yes	4.4x	Yes	f/4	885g	0.45m	0.22x	82mm	9	207	★★★★☆	
Tamron SP AF 17-50mm f/2.8 XR Di II VC	£420/\$650	No	2.9x	Yes	f/2.8	570g	0.29m	0.21x	72mm	7	142	★★★★☆	
Tamron SP AF 24-70mm f/2.8 Di VC USD G2	£1250/\$1200	Yes	2.9x	Yes	f/2.8	905g	0.38m	0.2x	82mm	9	142	★★★★☆	
Tamron SP AF 28-75mm f/2.8 XR Di	£450/\$500	Yes	2.7x	No	f/2.8	510g	0.33m	0.26x	67mm	7	57	★★★★☆	

SUPERZOOMS	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF-S 18-135mm f/3.5-5.6 IS USM	£484/\$599	No	7.5x	Yes	f/3.5-5.6	515g	0.39m	0.28x	67mm	7	214	★★★★☆	
Canon EF-M 18-150mm f/3.5-6.3 IS STM	£459/\$499	No	8.3x	Yes	f/3.5-6.3	300g	0.25-0.45m	0.31x	55mm	7	209	★★★★☆	
Canon EF-S 18-200mm f/3.5-5.6 IS	£470/\$700	No	11.1x	Yes	f/3.5-5.6	595g	0.45m	0.24x	72mm	6	128	★★★★☆	
Canon RF 24-240mm F4-6.3 IS USM	£999/\$899	Yes	10x	Yes	f/4-6.3	750g	0.5m	0.26x	72mm	7	209	★★★★☆	●
Canon RF-S 18-150mm F3.5-6.3 IS STM	£499/\$499	No	8.3x	Yes	f/3.5-6.3	310g	0.17m	0.31x	49mm	7	209	★★★★☆	
Canon EF 28-300mm f/3.5-5.6L IS USM	£2479/\$2449	Yes	10.7x	Yes	f/3.5-5.6	1760g	0.7m	0.30x	77mm	8	191	★★★★☆	
Sigma 18-200mm f/3.5-6.3 DC Macro OS HSM C	£269/\$399	No	11.1x	Yes	f/3.5-6.3	430g	0.39m	0.33x	62mm	7	172	★★★★☆	
Sigma 18-250mm f/3.5-6.3 DC Macro OS HSM	£350/\$350	No	13.9x	Yes	f/3.5-6.3	470g	0.35m	0.34x	62mm	7	92	★★★★☆	●
Sigma 18-300mm f/3.5-6.3 DC Macro OS HSM C	£369/\$579	No	16.7x	Yes	f/3.5-6.3	585g	0.39m	0.33x	72mm	7	191	★★★★☆	
Tamron 16-300mm f/3.5-6.3 Di III VC PZD Macro	£499/\$629	No	18.8x	Yes	f/3.5-6.3	540g	0.39m	0.34x	67mm	7	172	★★★★☆	
Tamron 18-200mm f/3.5-6.3 Di II VC	£209/\$249	No	11.1x	Yes	f/3.5-6.3	400g	0.49m	0.25x	62mm	7	191	★★★★☆	●
Tamron AF 18-270mm f/3.5-6.3 Di II VC PZD	£300/\$450	No	15x	Yes	f/3.5-6.3	450g	0.49m	0.26x	62mm	7	128	★★★★☆	
Tamron 18-400mm f/3.5-6.3 Di II VC HLD	£599/\$649	No	22.2x	Yes	f/3.5-6.3	710g	0.45m	0.34x	72mm	7	191	★★★★☆	

WIDE-ANGLE PRIMES	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF 14mm f/2.8L II USM	£2000/\$2100	Yes	None	No	f/2.8	645g	0.2m	0.15x	None	6			
Canon RF 16mm F2.8 STM	£299/\$249	Yes	None	No	f/2.8	165g	0.13m	0.26x	43mm	7	209	★★★★☆	●
Canon TS-E 17mm f/4L (tilt & shift)	£2000/\$2150	Yes	None	No	f/4	820g	0.25m	0.14x	77mm	8	90	★★★★★	
Canon EF 20mm f/2.8 USM	£450/\$540	Yes	None	No	f/2.8	405g	0.25m	0.14x	72mm	5	114	★★★★☆	
Canon EF-M 22mm f/2 STM	£229/\$249	No	None	No	f/2	105g	0.15m	0.21x	43mm	7	180	★★★★☆	
Canon EF 24mm f/1.4L II USM	£1500/\$1550	Yes	None	No	f/1.4	650g	0.25m	0.17x	77mm	8			
Canon RF 24mm F1.8 Macro IS STM	£669/\$499	Yes	None	Yes	f/1.8	270g	0.14m	0.5x	24mm	9	209	★★★★☆	
Canon EF 24mm f/2.8 IS USM	£529/\$599	Yes	None	Yes	f/2.8	280g	0.2m	0.23x	58mm	7	180	★★★★☆	
Canon EF-S 24mm f/2.8 STM	£159/\$129	No	None	No	f/2.8	125g	0.16m	0.27x	52mm	7	214	★★★★☆	
Canon TS-E 24mm f/3.5L II (tilt & shift)	£1690/\$1900	Yes	None	No	f/3.5	780g	0.21m	0.34x	82mm	8			
Canon EF 28mm f/1.8 USM	£420/\$510	Yes	None	No	f/1.8	310g	0.25m	0.18x	58mm	7	67	★★★★☆	
Canon EF 28mm f/2.8 IS USM	£390/\$500	Yes	None	Yes	f/2.8	260g	0.23m	0.2x	58mm	7	114	★★★★☆	
Canon EF 35mm f/1.4L II USM	£1650/\$1650	Yes	None	No	f/1.4	760g	0.28m	0.21x	72mm	9	141	★★★★☆	
Canon RF 35mm F1.8 IS Macro STM	£499/\$499	Yes	None	Yes	f/1.8	305g	0.17m	0.5x	52mm	9	202	★★★★☆	●
Canon EF 35mm f/2 IS USM	£539/\$599	Yes	None	Yes	f/2	335g	0.24m	0.24x	67mm	8	180	★★★★☆	
Irix 11mm f/4 Blackstone	£609/\$650	Yes	None	No	f/4	790g	0.28m	0.13	None	9			
Irix 15mm f/2.4 Blackstone	£574/\$675	Yes	None	No	f/2.4	685g	0.25m	0.11x	95mm	9	167	★★★★☆	
Peleng 8mm f/3.5 Fisheye	£250/\$215	Yes	None	No	f/3.5	400g	0.22m	0.13x	None				
Peleng 17mm f/2.8 Fisheye	£290/\$290	Yes	None	No	f/2.8	630g	0.3m	N/S	None				
Samyang 8mm f/3.5 IF MC CSII DH Circular	£240/\$260	No	None	No	f/3.5	435g	0.3m	N/S	None	6			
Samyang 10mm f/2.8 ED AS NCS CS	£379/\$399	No	None	No	f/2.8	590g	0.25m	N/S	None	6	167	★★★★☆	
Samyang 12mm f/2.8 ED AS NCS Diagonal	£360/\$470	Yes	None	No	f/2.8	530g	0.2m	N/S	None	7			
Samyang XP 14mm f/2.4	£899/\$999	Yes	None	No	f/2.4	791g	0.27m	0.08x	None	9	167	★★★★☆	
Samyang 16mm f/2 ED AS UMC CS	£330/\$360	No	None	No	f/2	590g	0.2m	N/S	77mm	8			
Samyang 24mm f/1.4 ED AS UMC	£480/\$470	Yes	None	No	f/1.4	680g	0.25m	N/S	77mm	8			
Samyang T-S 24mm f/3.5 ED AS UMC (tilt & shift)	£680/\$760	Yes	None	No	f/3.5	680g	0.2m	N/S	82mm	8	90	★★★★☆	
Samyang 35mm f/1.4 AS UMC AE	£489/\$499	Yes	None	No	f/1.4	660g	0.3m	N/S	77mm	8	180	★★★★☆	
Sigma 4.5mm f/2.8 EX DC HSM Circular Fisheye	£700/\$900	No	None	No	f/2.8	470g	0.14m	0.17x	None	6	87	★★★★☆	
Sigma 8mm f/3.5 EX DG Circular Fisheye	£700/\$900	Yes	None	No	f/3.5	400g	0.14m	0.22x	None	6	87	★★★★☆	●
Sigma 10mm f/2.8 EX DC HSM Diagonal Fisheye	£600/\$600	No	None	No	f/2.8	475g	0.14m	0.11x	None	7	87	★★★★☆	
Sigma 14mm f/1.8 DG HSM I A	£1399/\$1599	Yes	None	No	f/1.8	1170g	0.27m	0.19x	None	9	203	★★★★☆	
Sigma 15mm f/2.8 EX DG Diagonal Fisheye	£600/\$610	Yes	None	No	f/2.8	370g	0.15m	0.26x	None	7	44	★★★★☆	
Sigma 16mm f/1.4 DC DN I C	£449/\$400	Yes	None	No	f/1.4	405g	0.25m	0.1x	67mm	9	161	★★★★☆	
Sigma 20mm f/1.4 DG HSM A	£700/\$900	Yes	None	No	f/1.4	950g	0.28m	0.14x	77mm	9	114	★★★★☆	
Sigma 24mm f/1.4 DG HSM A	£650/\$850	Yes	None	No	f/1.4	665g	0.25m	0.19x	77mm	9	114	★★★★☆	●
Sigma 30mm f/1.4 DC DN I C	£329/\$339	Yes	None	No	f/1.4	270g	0.3m	0.14x	52mm	9	161	★★★★☆	
Sigma 35mm f/1.4 DG HSM A	£699/\$699	Yes	None	No	f/1.4	665g	0.3m	0.19x	67mm	9	180	★★★★☆	
Sigma 56mm f/1.4 DC DN I C	£379/\$479	Yes	None	No	f/1.4	280g	0.5m	0.14x	55mm	9	202	★★★★☆	
Tamron SP 35mm f/1.8 Di VC USD	£649/\$599	Yes	None	Yes	f/1.8	480g	0.2m	0.4x	67mm	9	180	★★★★☆	
Zeiss Milvus 15mm f/2.8 ZE	£2330/\$2700	Yes	None	No	f/2.8	947g	0.25m	0.11x	95mm	9			
Zeiss Distagon T* 18mm f/3.5 ZE	£1090/\$1395	Yes	None	No	f/3.5	510g	0.3m	0.08x	82mm	9	44	★★★★☆	●
Zeiss Milvus 21mm f/2.8 ZE	£1400/\$1850	Yes	None	No	f/2.8	851g	0.22m	0.2x	82mm	9			
Zeiss Distagon T* 25mm f/2 ZE	£1270/\$1700	Yes	None	No	f/2	600g	0.25m	0.17x	67mm	9			
Zeiss Distagon T* 28mm f/2 ZE	£980/\$1285	Yes	None	No	f/2	580g	0.24m	0.21x	58mm	9			
Zeiss Otus 28mm f/1.4 ZE	£3500/\$5000	Yes	None	No	f/1.4	1350g	0.3m	0.2x	95mm	9			
Zeiss Milvus 35mm f/2 ZE	£935/\$1120	Yes	None	No	f/2	702g	0.3m	0.19x	58mm	9			

## Contacts

**Canon** www.canon.co.uk  
**Peleng** www.digitaltoystore.co.uk  
**Samyang** www.samyang-lens.co.uk  
**Schneider** www.linhofstudio.com

**Sigma** www.sigma-imaging-uk.com  
**Tamron** www.tamron.co.uk  
**Tokina** www.tokinalelens.com  
**Zeiss** www.zeiss.co.uk

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### STANDARD PRIMES

	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
<b>7Artisans</b> 50mm f/1.05	£450/\$486	Yes	None	No	f/1.05	606g	0.57m	0.13x	58mm	13	202	★★★★★	
<b>Canon</b> EF 40mm f/2.8 STM	£200/\$180	Yes	None	No	f/2.8	130g	0.3m	0.18x	52mm	7	141	★★★★★	
<b>Canon</b> TS-E 45mm f/2.8 (tilt & shift)	£1200/\$1400	Yes	None	No	f/2.8	645g	0.4m	0.16x	72mm	8		★★★★★	
<b>Canon</b> EF 50mm f/1.2L USM	£1370/\$1350	Yes	None	No	f/1.2	580g	0.45m	0.15x	72mm	8	103	★★★★★	
<b>Canon</b> EF 50mm f/1.4 USM	£389/\$400	Yes	None	No	f/1.4	290g	0.45m	0.15x	58mm	8	185	★★★★★	
<b>Canon</b> EF 50mm f/1.8 STM	£129/\$125	Yes	None	No	f/1.8	160g	0.35m	0.21x	49mm	7	214	★★★★★	●
<b>Canon</b> RF 50mm F1.2L USM	£2389/\$2299	Yes	None	No	f/1.2	950g	0.40m	0.15x	77mm	10	185	★★★★★	
<b>Canon</b> RF 50mm F1.8 STM	£199/\$149	Yes	None	No	f/1.8	160g	0.30m	0.25x	43mm	7	202	★★★★★	●
<b>Samyang</b> 50mm f/1.4 AS UMC	£310/\$350	Yes	None	No	f/1.4	575g	0.45m	N/S	77mm	8		★★★★★	
<b>Sigma</b> 30mm f/1.4 DC HSM A	£349/\$499	No	None	No	f/1.4	435g	0.3m	0.15x	62mm	9	166	★★★★★	
<b>Sigma</b> 50mm f/1.4 DG HSM A	£649/\$949	Yes	None	No	f/1.4	815g	0.4m	0.18x	77mm	9	185	★★★★★	●
<b>Tamron</b> SP 45mm f/1.8 Di VC USD	£415/\$549	Yes	None	Yes	f/1.8	540g	0.29m	0.29x	67mm	9	185	★★★★★	
<b>Tokina</b> Opera 50mm f/1.4 FF	£879/\$949	Yes	None	No	f/1.4	950g	0.4m	0.18x	72mm	9	148	★★★★★	
<b>Zeiss</b> Milvus 50mm f/1.4 ZF.2	£1159/\$1199	Yes	None	No	f/1.4	922g	0.45m	0.15x	67mm	9	185	★★★★★	
<b>Zeiss</b> Planar T* 50mm f/1.4 ZE	£560/\$725	Yes	None	No	f/1.4	380g	0.45m	0.15x	58mm	9		★★★★★	
<b>Zeiss</b> Otus 55mm f/1.4	£2700/\$3990	Yes	None	No	f/1.4	1030g	0.5m	0.15x	77mm	9		★★★★★	

### TELEPHOTO PRIMES

<b>Canon</b> EF 85mm f/1.2L II USM	£1999/\$1999	Yes	None	No	f/1.2	1025g	0.95m	0.11x	72mm	8	179	★★★★★	
<b>Canon</b> EF 85mm f/1.4L IS USM	£1489/\$1599	Yes	None	Yes	f/1.4	950g	0.85m	0.12x	77mm	9	179	★★★★★	●
<b>Canon</b> EF 85mm f/1.8 USM	£489/\$499	Yes	None	No	f/1.8	425g	0.85m	0.13x	58mm	8	214	★★★★★	
<b>Canon</b> RF 85mm F1.2L USM	£2869/\$2699	Yes	None	No	f/1.2	1195g	0.85m	0.12x	82mm	9	179	★★★★★	●
<b>Canon</b> TS-E 90mm f/2.8 (tilt & shift)	£1240/\$1400	Yes	None	No	f/2.8	565g	0.5m	0.29x	58mm	8		★★★★★	
<b>Canon</b> EF 100mm f/2 USM	£410/\$500	Yes	None	No	f/2	460g	0.9m	0.14x	58mm	8	46	★★★★★	
<b>Canon</b> EF 135mm f/2L USM	£940/\$1000	Yes	None	No	f/2	750g	0.9m	0.19x	72mm	8		★★★★★	
<b>Canon</b> EF 200mm f/2L IS USM	£5400/\$5700	Yes	None	Yes	f/2	2520g	1.9m	0.12x	52mm	8	98	★★★★★	
<b>Canon</b> EF 200mm f/2.8L II USM	£700/\$750	Yes	None	No	f/2.8	765g	1.5m	0.16x	72mm	8	98	★★★★★	
<b>Canon</b> EF 300mm f/2.8L IS II USM	£5800/\$6100	Yes	None	Yes	f/2.8	2400g	2.0m	0.18x	52mm	9	54	★★★★★	
<b>Canon</b> EF 300mm f/4L IS USM	£1140/\$1350	Yes	None	Yes	f/4	1190g	1.5m	0.24x	77mm	8	117	★★★★★	
<b>Canon</b> EF 400mm f/2.8L IS II USM	£9900/\$10,000	Yes	None	Yes	f/2.8	3850g	2.7m	0.17x	52mm	9	54	★★★★★	
<b>Canon</b> EF 400mm f/4 DO IS II USM	£7000/\$6900	Yes	None	Yes	f/4	2100g	3.3m	0.13x	52mm	9		★★★★★	
<b>Canon</b> EF 400mm f/5.6L USM	£1180/\$1180	Yes	None	No	f/5.6	1250g	3.5m	0.12x	77mm	8	117	★★★★★	
<b>Canon</b> EF 500mm f/4L IS II USM	£8400/\$9000	Yes	None	Yes	f/4	3190g	3.7m	0.15x	52mm	9		★★★★★	
<b>Canon</b> EF 600mm f/4L IS II USM	£11,350/\$11,500	Yes	None	Yes	f/4	3920g	4.5m	0.15x	52mm	9		★★★★★	
<b>Canon</b> RF 600mm F11 IS STM	£829/\$799	Yes	None	Yes	f/11	930g	4.5m	0.14x	82mm	N/A	206	★★★★★	
<b>Canon</b> RF 800mm F11 IS STM	£1099/\$899	Yes	None	Yes	f/11	1260g	6.0m	0.14x	95mm	N/A	196	★★★★★	
<b>Canon</b> EF 800mm f/5.6L IS USM	£11,900/\$13,000	Yes	None	Yes	f/5.6	4500g	6.0m	0.14x	52mm	8		★★★★★	
<b>Samyang</b> MF 85mm f/1.4 RF	£319/\$399	Yes	None	No	f/1.4	730g	1.1m	0.09x	72mm	8	202	★★★★★	
<b>Samyang</b> AF 85mm f/1.4 EF	£599/\$699	Yes	None	No	f/1.4	485g	0.9m	0.11x	77mm	9	159	★★★★★	
<b>Samyang</b> 135mm f/2 ED UMC	£370/\$530	Yes	None	No	f/2	830g	0.8m	N/S	77mm	9		★★★★★	
<b>Samyang</b> 500mm MC IF f/6.3 Mirror	£125/\$150	Yes	None	No	f/6.3	705g	2.0m	N/S	95mm	0		★★★★★	
<b>Sigma</b> 85mm f/1.4 DG HSM A	£929/\$1099	Yes	None	No	f/1.4	TBA	0.85m	0.12x	86mm	9	179	★★★★★	
<b>Sigma</b> APO 300mm f/2.8 EX DG HSM	£2600/\$3400	Yes	None	No	f/2.8	2400g	2.5m	0.13x	46mm	9	98	★★★★★	
<b>Sigma</b> APO 500mm f/4.5 EX DG HSM	£3600/\$4400	Yes	None	No	f/4.5	3150g	4.0m	0.13x	46mm	9		★★★★★	
<b>Sigma</b> 500mm f/4 DG OS HSM S	£4699/\$5999	Yes	None	Yes	f/4	TBA	3.5m	0.15x	46mm	9	206	★★★★★	
<b>Sigma</b> APO 800mm f/5.6 EX DG HSM	£5000/\$6600	Yes	None	No	f/5.6	4.9kg	7.0m	0.11x	46mm	9	21	★★★★★	
<b>Tamron</b> SP 85mm f/1.8 Di VC USD	£750/\$750	Yes	None	Yes	f/1.8	700g	0.8m	0.14x	67mm	9	159	★★★★★	
<b>Zeiss</b> Milvus 85mm f/1.4 ZE	£1380/\$1800	Yes	None	No	f/1.4	1280g	0.8m	0.14x	77mm	9		★★★★★	
<b>Zeiss</b> Milvus 135mm f/2 ZE	£1900/\$2200	Yes	None	No	f/2	1123g	0.8m	0.28x	77mm	9		★★★★★	

### MACRO

<b>Canon</b> EF-M 28mm f/3.5 Macro IS STM	£309/\$299	No	None	Yes	f/3.5	130g	0.097m	1.2x	44.8mm	7	177	★★★★★	
<b>Canon</b> EF-S 35mm f/2.8 Macro IS STM	£379/\$349	No	None	Yes	f/2.8	190g	0.13m	1.0x	56mm	7	177	★★★★★	
<b>Canon</b> EF-S 60mm f/2.8 Macro USM	£399/\$350	No	None	No	f/2.8	335g	0.20m	1.0x	52mm	7	164	★★★★★	
<b>Canon</b> MP-E65mm f/2.8 1-5x Macro	£980/\$1050	Yes	None	No	f/2.8	710g	0.24m	5.0x	58mm	6	50	★★★★★	
<b>Canon</b> EF 100mm f/2.8 Macro USM	£499/\$599	Yes	None	No	f/2.8	600g	0.31m	1.0x	58mm	8	177	★★★★★	
<b>Canon</b> EF 100mm f/2.8L Macro IS USM	£999/\$1099	Yes	None	Yes	f/2.8	625g	0.3m	1.0x	67mm	9	204	★★★★★	
<b>Canon</b> EF 180mm f/3.5L Macro USM	£1330/\$1400	Yes	None	No	f/3.5	1090g	0.48m	1.0x	72mm	8	69	★★★★★	
<b>Canon</b> RF 85mm F2 Macro IS STM	£649/\$549	Yes	None	Yes	f/2	500g	0.35m	0.5x	67mm	9	204	★★★★★	
<b>Canon</b> RF 100mm F2.8L Macro IS USM	£1239/\$1199	Yes	None	Yes	f/2.8	730g	0.3m	1.4x	67mm	9	204	★★★★★	●
<b>Irix</b> 150mm f/2.8 Macro 1:1 Dragonfly	£449/\$495	Yes	None	No	f/2.8	848g	0.35m	1.0x	77mm	11	204	★★★★★	
<b>Laowa</b> 90mm f/2.8 2X Ultra Macro APO	£569/\$499	Yes	None	No	f/2.8	619g	0.21m	2.0x	67mm	13	204	★★★★★	
<b>Laowa</b> 100mm f/2.8 2.1 Ultra Macro APO	£499/\$499	Yes	None	No	f/2.8	638-650g	0.25m	2.0x	67mm	7-13	202	★★★★★	
<b>Sigma</b> 70mm f/2.8 DG Macro Art	£449/\$569	Yes	None	No	f/2.8	515g	0.26m	1.0x	49mm	9	204	★★★★★	
<b>Sigma</b> 105mm f/2.8 EX DG OS HSM Macro	£359/\$569	Yes	None	No	f/2.8	725g	0.31m	1.0x	62mm	9	204	★★★★★	●
<b>Sigma</b> APO Macro 150mm f/2.8 EX DG OS HSM	£780/\$1100	Yes	None	Yes	f/2.8	1150g	0.38m	1.0x	72mm	9	138	★★★★★	
<b>Sigma</b> APO Macro 180mm f/2.8 EX DG OS HSM	£1250/\$1700	Yes	None	Yes	f/2.8	1640g	0.47m	1.0x	86mm	9	102	★★★★★	
<b>Tamron</b> SP AF 60mm f/2 Di II LD (IF) Macro	£350/\$525	No	None	No	f/2	350g	0.23m	1.0x	55mm	7	138	★★★★★	
<b>Tamron</b> SP AF 90mm f/2.8 Di Macro	£350/\$500	Yes	None	No	f/2.8	400g	0.29m	1.0x	55mm	9	102	★★★★★	
<b>Tamron</b> SP AF 90mm f/2.8 Di VC Macro	£649/\$649	Yes	None	Yes	f/2.8	610g	0.3m	1.0x	62mm	9	184	★★★★★	
<b>Tamron</b> SP AF 180mm f/3.5 Di Macro	£800/\$740	Yes	None	No	f/3.5	985g	0.47m	1.0x	72mm	7	69	★★★★★	
<b>Tokina</b> 100mm f/2.8 AT-X PRO Macro	£464/\$429	Yes	None	No	f/2.8	540g	0.3m	1.0x	55mm	9	204	★★★★★	
<b>Zeiss</b> Milvus Makro Planar 100mm f/2 ZE	£1300/\$1840	Yes	None	No	f/2	843g	0.44m	0.5x	67mm	9	50	★★★★★	

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### Issue 213 February 2024

#### CANON GEAR OF THE YEAR

The best Canon EOS cameras, lenses and kit • Canon pro Nick Hanson's top tips for capturing great landscape photos • Our Apprentice learns to take paw-fect pet photos of well-behaved dogs and cats • Control depth of field for more creative photos in our Canon School • Canon's new RF 200-800mm super-duper telephoto zoom lens tested



### Issue 212 January 2024

#### GREAT WINTER LANDSCAPES

Snowy scenes and amazing astro to lens advice and tips • Winning Canon images from the Red Bull photo competition • Long exposures and traffic light trails on a city night shoot in Bristol • Canon photographer David Clapp captures an aurora borealis light show • Wildlife photographer Sam Hazell on the mental health benefits of photographing nature

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Canon EOS 6D Mark II Body	£457
Canon EOS R6 Mark II Body	£1,540
Canon EOS R10 Body	£539
Canon RF 70-200mm f4L IS USM Lens	£823
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# FOCUS POINT

We'd love to hear your thoughts on the magazine and all things photographic! Email us at [photoplus@futurenet.com](mailto:photoplus@futurenet.com)

## Letter of the Month

I love the astro photos and guides you've featured in PhotoPlus over the years. I have had only limited success in taking star shots, partly as I don't follow the instructions in your guides as I tend to forget one or two important things. A lot more practice and learning from my mistakes would be prudent.

Recently, some of your best night sky pictures have been produced by stacking many exposures to get more stars in the shot. Although I get the mechanics of producing these images, I do not see why stacking tens or even hundreds of seemingly identical short exposures gives you more detail than one long exposure?

*Andy Mason, Saltford, Bath*

Thanks for the email, Andy, glad we are inspiring you! Canon pro astro photographer Chris Grimmer replies:



"Digital camera noise is random, so stacking several astro images shot at ISO3200 helps even the noise out. Secondly, stars are known to 'twinkle' so might appear lighter or darker from one frame to the next, and again stacking several images helps even out the brightness."

Get in touch with your own stories, issues & images at [photoplus@futurenet.com](mailto:photoplus@futurenet.com)

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## The month in numbers

# 1220

The year they started building the beautiful Gothic Salisbury Cathedral. Amazingly, 38 years later, it was finished. Epic architecture Hot Shots on page 8

# 199 10

We test the best RF prime lenses for Canon EOS R mirrorless cameras, with prices starting at only £199! Super Test on page 88

Learn 10 great reasons to visit The Photography & Video Show 2024 at the NEC this year, and come see the PhotoPlus team there! Page 74

## DigitalCameraWorld.com The best from our brilliant website

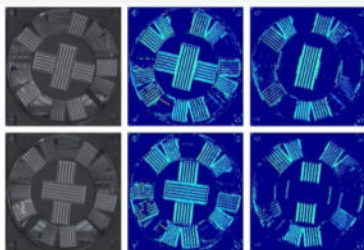


Image: Canon

### Canon is developing a sensor with a twist in the twisted-photodiode image sensor

Late last year Canon revealed at the 2023 IEDM that it's working on a new image sensor design, that's a development of dual-pixel autofocus sensor technology. See our website via our quick link [bit.ly/canon\\_twist](https://bit.ly/canon_twist)



Image: Canon

### Canon's new monster printers create large-format prints that will last 200 years

200-year colour guarantee sees new ink pigment that brings new life into 60, 40, 24-inch large format Canon imagePROGRAF PRO printers. Go to [DigitalCameraWorld.com](http://DigitalCameraWorld.com) via our quick link at [bit.ly/printers200](https://bit.ly/printers200)



Image: Future

### Canon EOS camera comes out on top as best camera for portrait photography

The best camera for portraits needs to capture perfect facial perspective and beautiful background blur – and the Canon EOS R5 is the No.1 in our buying guide! See more via our quick link [bit.ly/r5wins](https://bit.ly/r5wins)



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